



CYBER 180

# 810 and 830 Computer Systems

Logic Diagrams

Volume 1 of 3

CPU

810 Computer System  
810A Computer System  
830 Computer System  
830A Computer System

60469004

REVISION RECORD

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REVISION	DESCRIPTION
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A (07-86)	Manual released.
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Publication no.  
60469004

Revision letters I, O, Q, S, X, and Z are not used

Address comments concerning  
this manual to:

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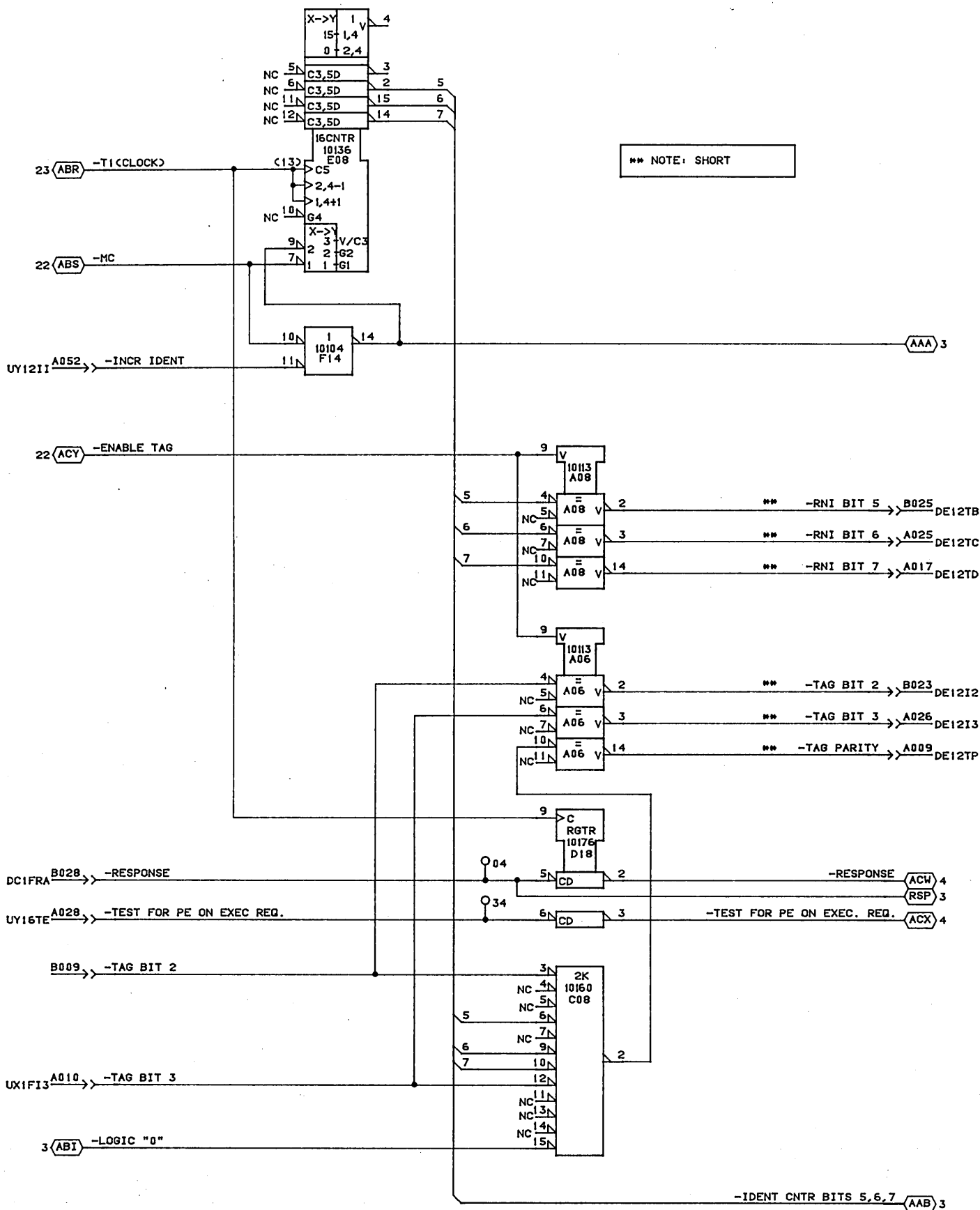
Control Data Canada, Ltd.  
1855 Minnesota Court  
MISSISSAUGA, Ontario  
Canada L5N 1K7

or use Comment Sheet located  
in front of the first diagram.

CPU PANEL



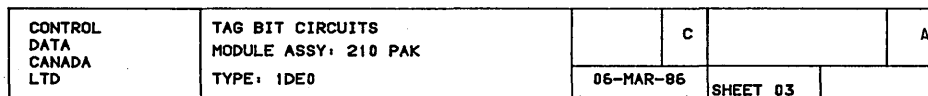


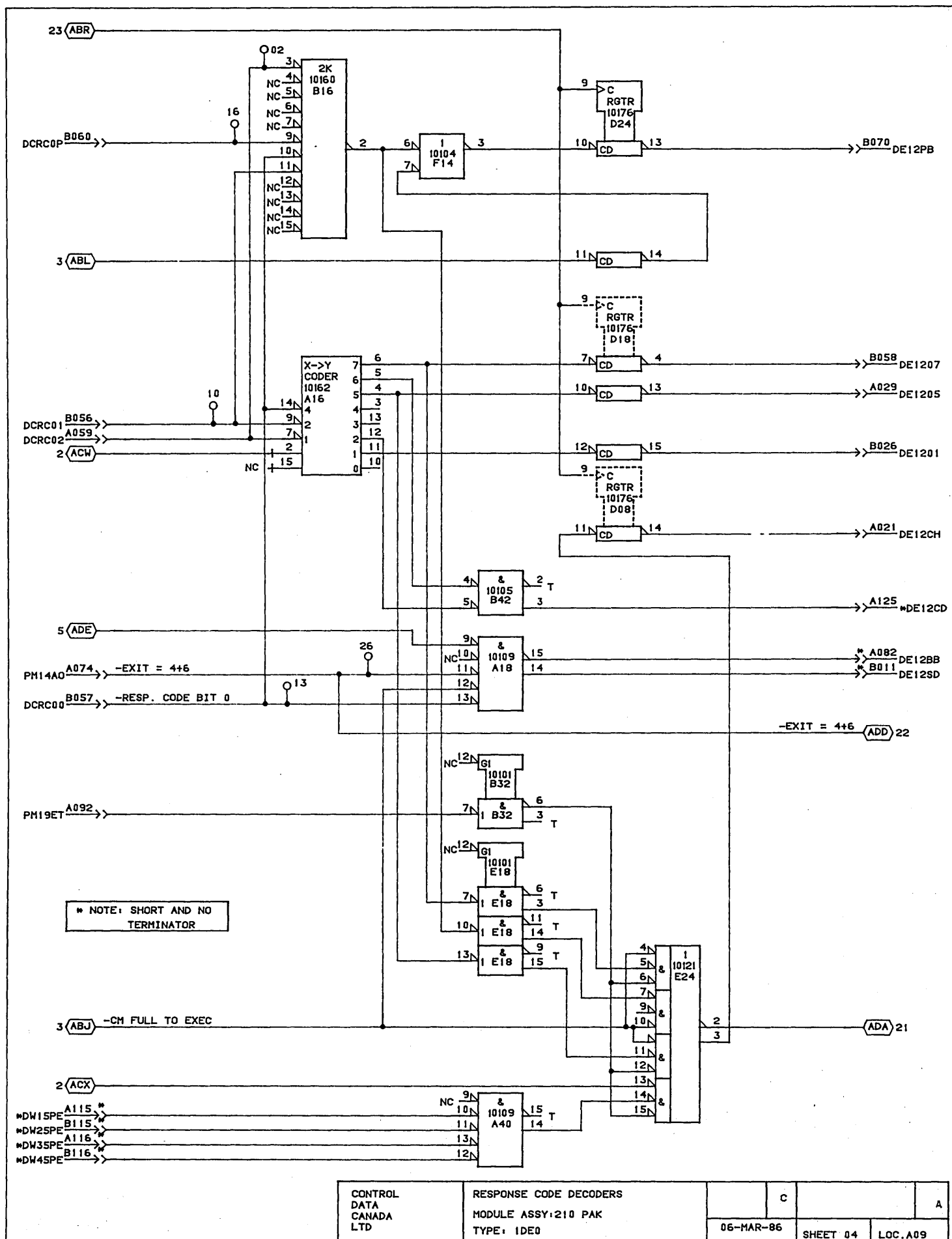


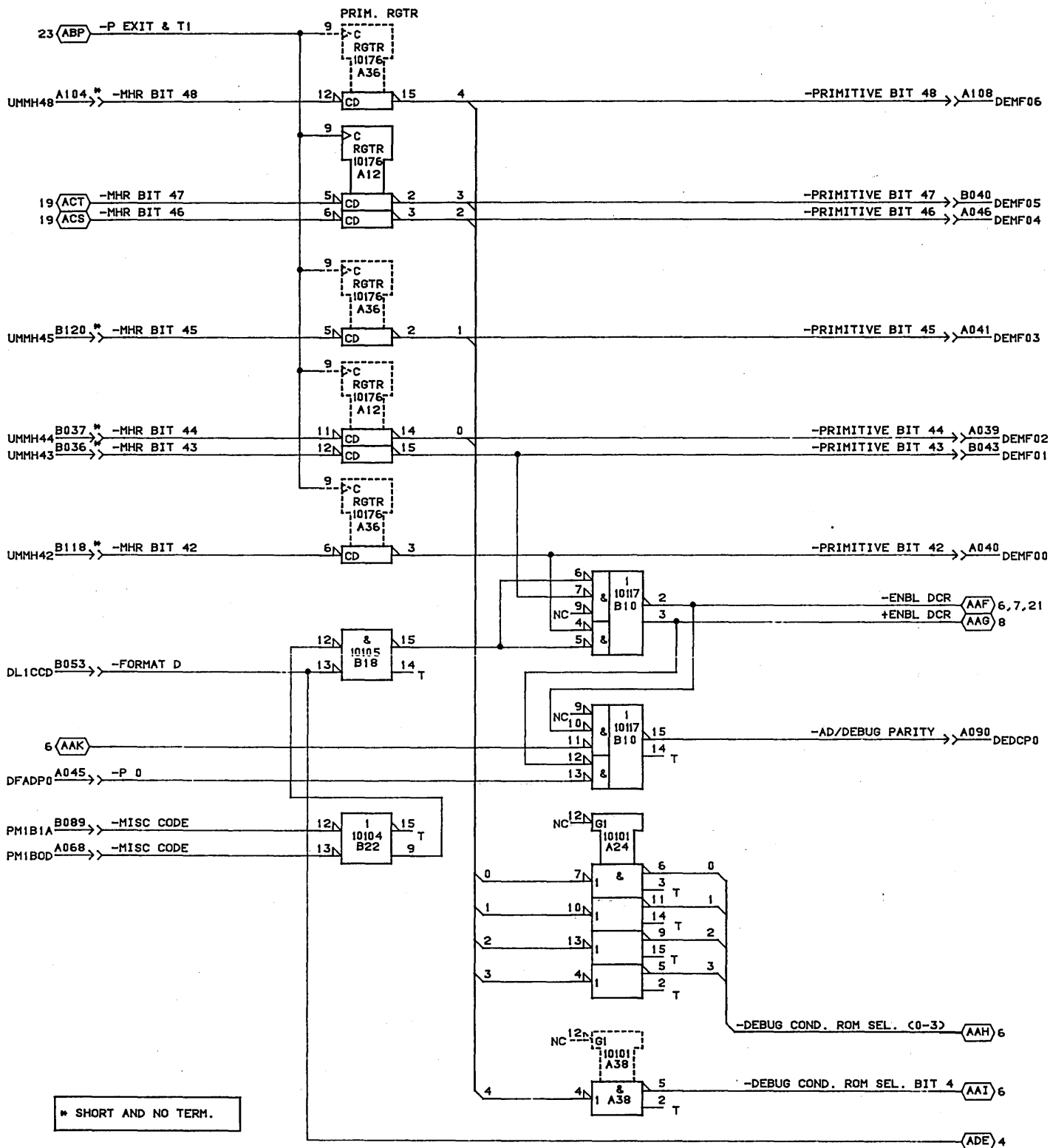
CONTROL  
DATA  
CANADA  
LTD

TAG BIT CIRCUITS  
MODULE ASSY-210 PAK  
TYPE: 1DE0

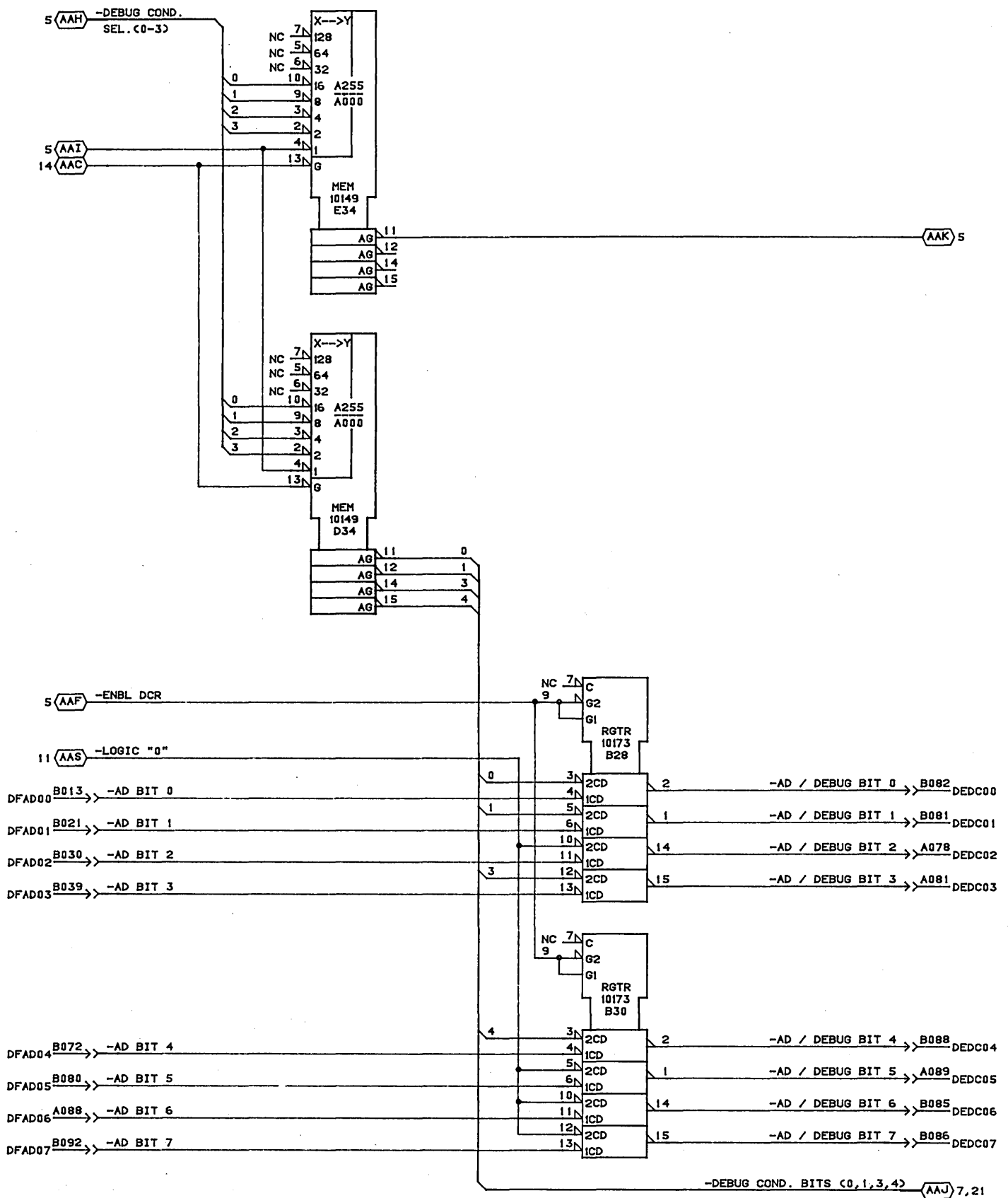
C	A
06-MAR-86	SHEET 02







CONTROL DATA CANADA LTD	PRIMITIVE RGTR AND DEBUG COND. SELECTS (0-3), 4 MODULE ASSY: 210 PAK TYPE: IDE0		C	-----		A
		06-MAR-86		SHEET 05		LOC.A09



CONTROL  
DATA  
CANADA  
LTD

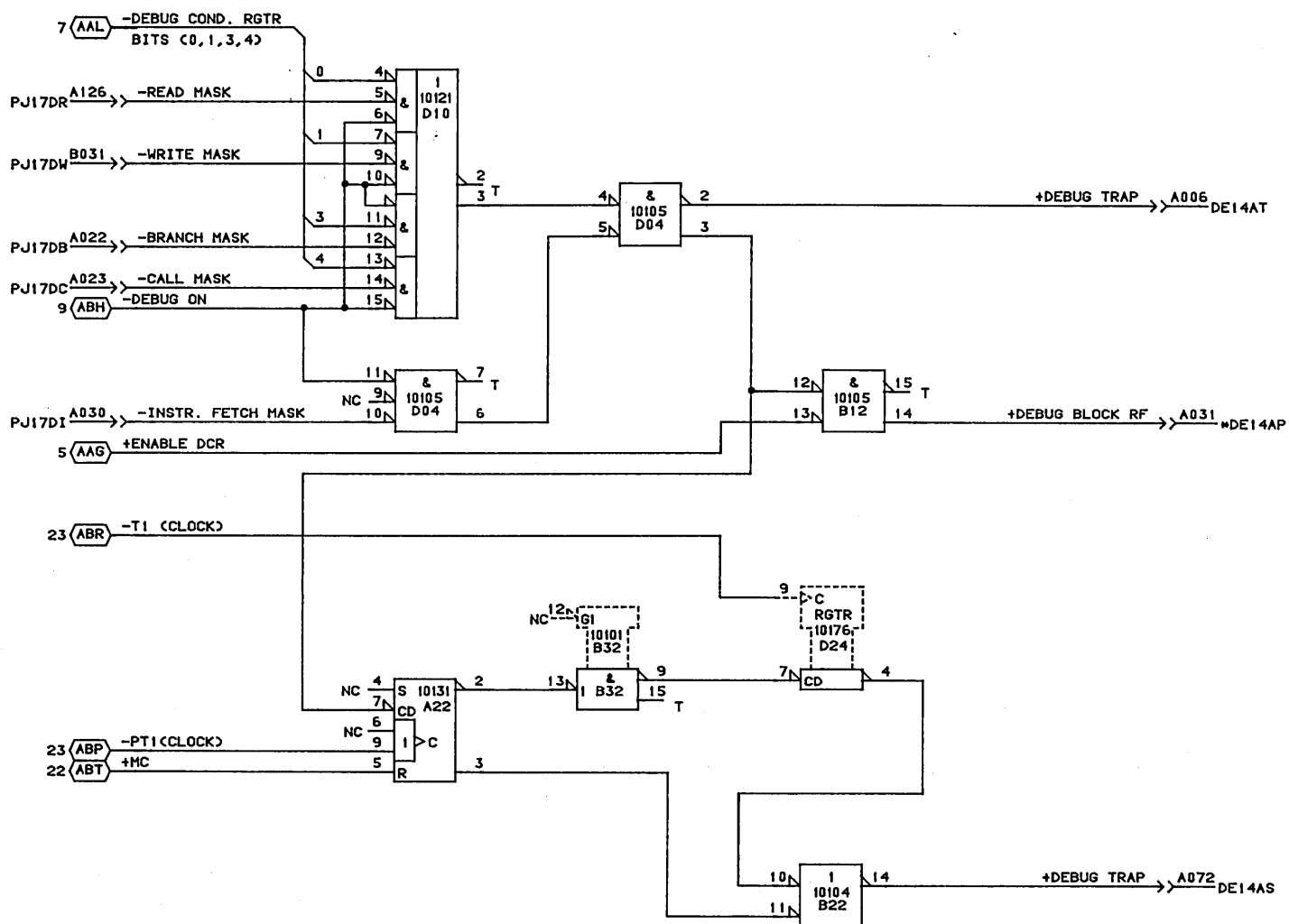
DEBUG CONDITION ROM  
MODULE ASSY. 210 PAK  
TYPE:IDE0

06-MAR-86

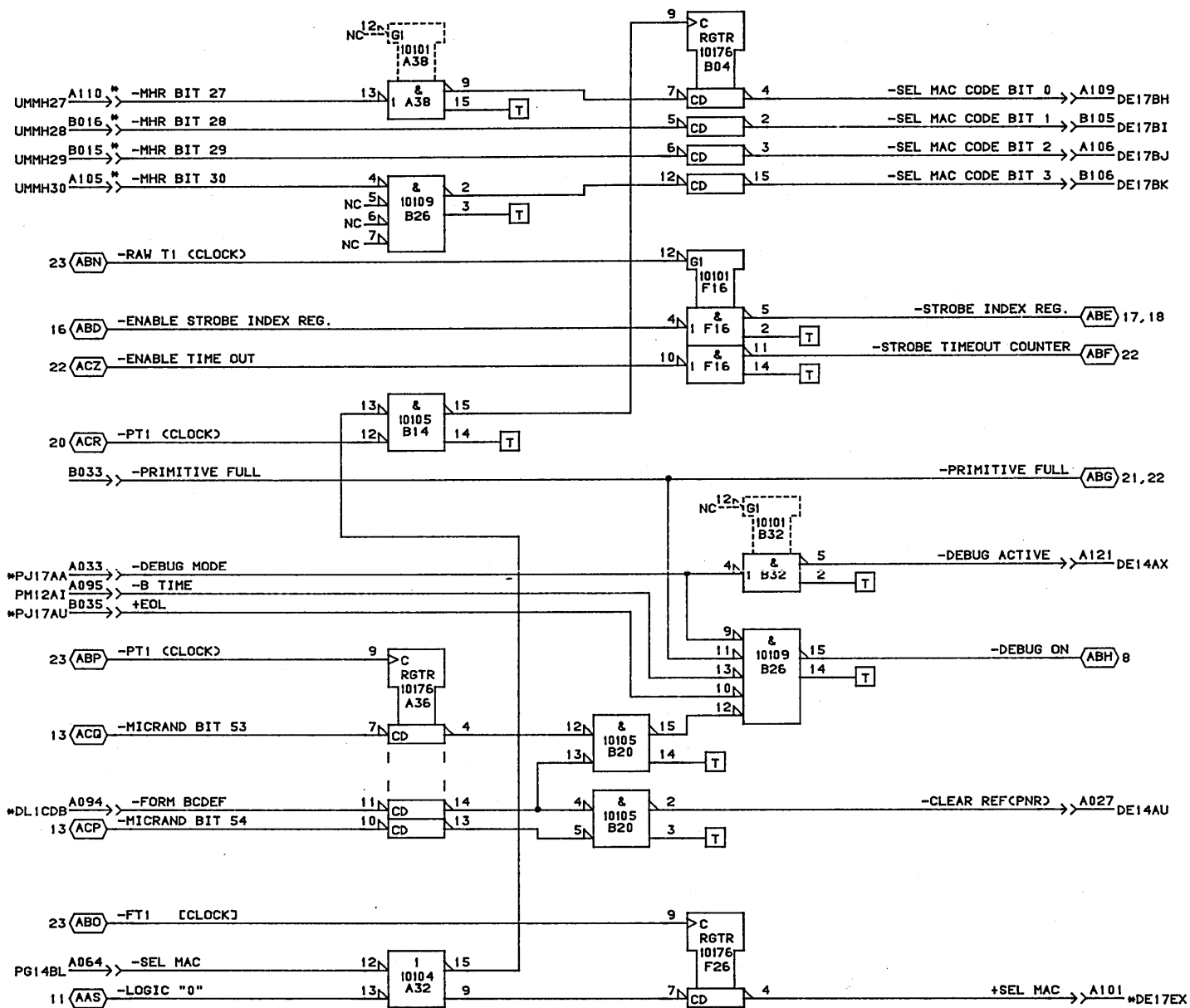
SHEET 06

LOC.A09





CONTROL DATA CANADA LTD	DEBUG CONDITION MATCH  MODULE ASSY: 210 PAK TYPE: IDE0		C		A
		06-MAR-86	SHEET 08	LOC. A09	



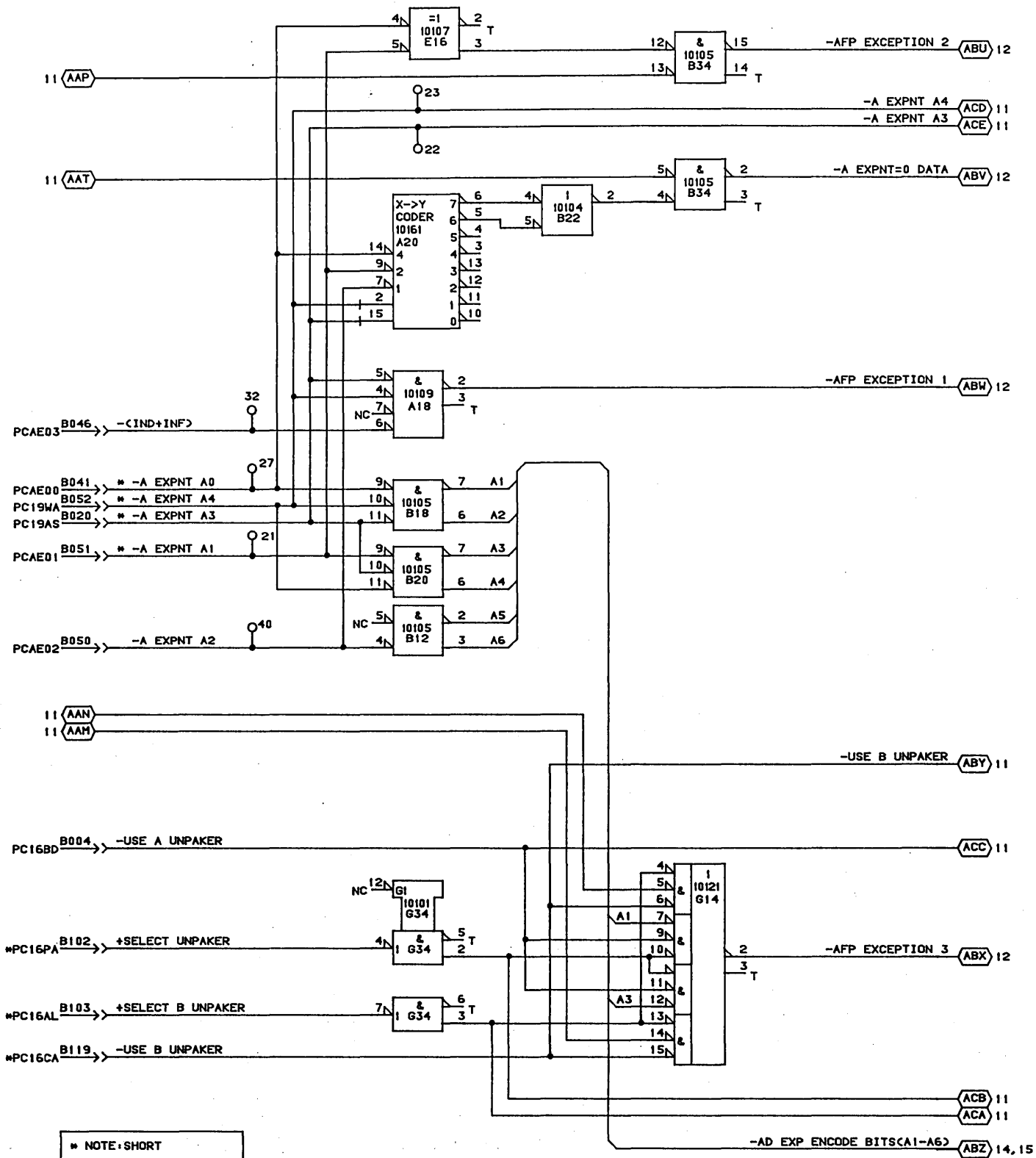
\* SHORT AND NO TERM.

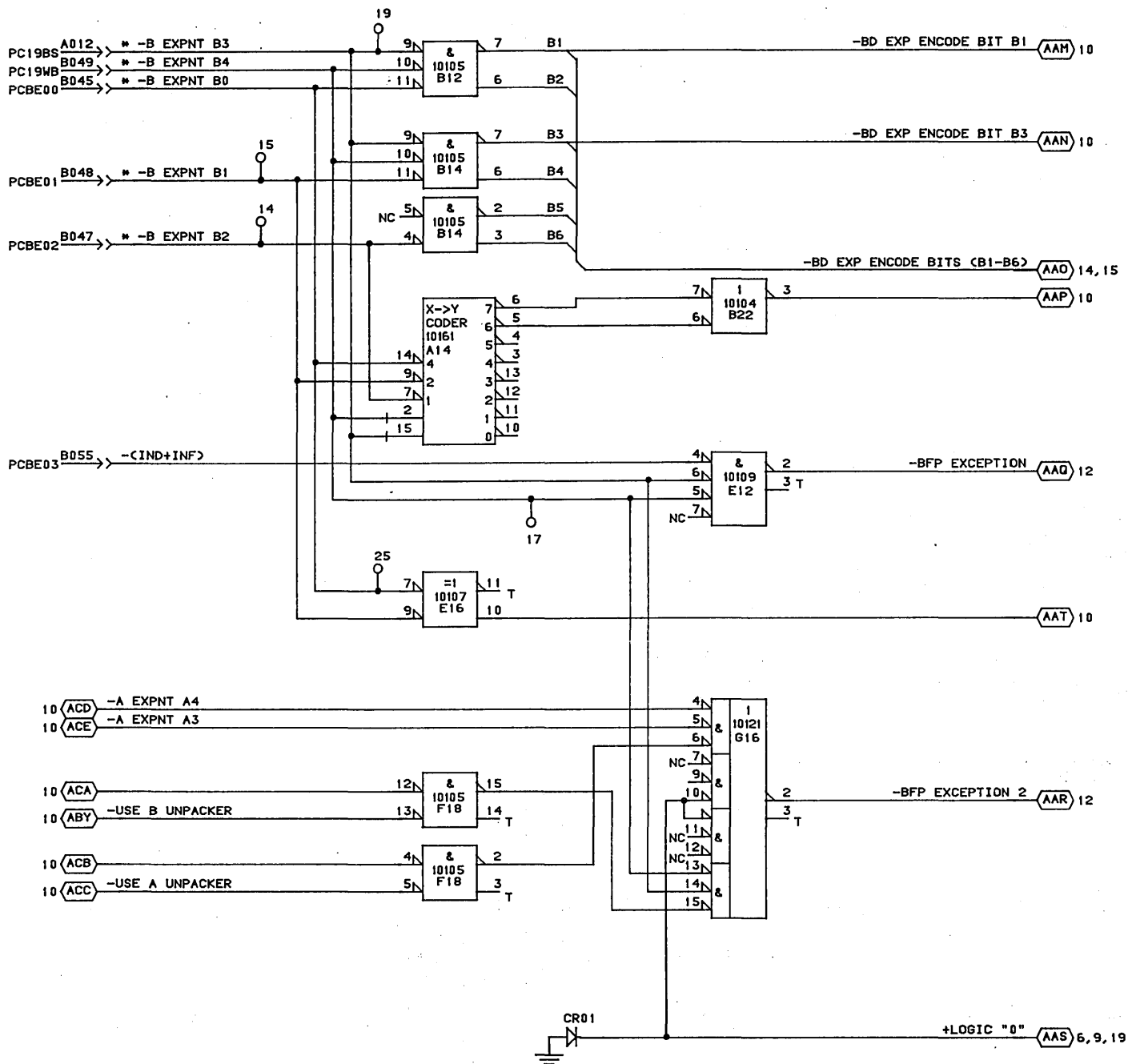
CONTROL  
DATA  
CANADA  
LTD

DEBUG ACTIVE AND MAC SELECT CODE  
MODULE ASSY: 210 PAK  
TYPE: 1DE0

	C		A
06-MAR-86	SHEET 09		

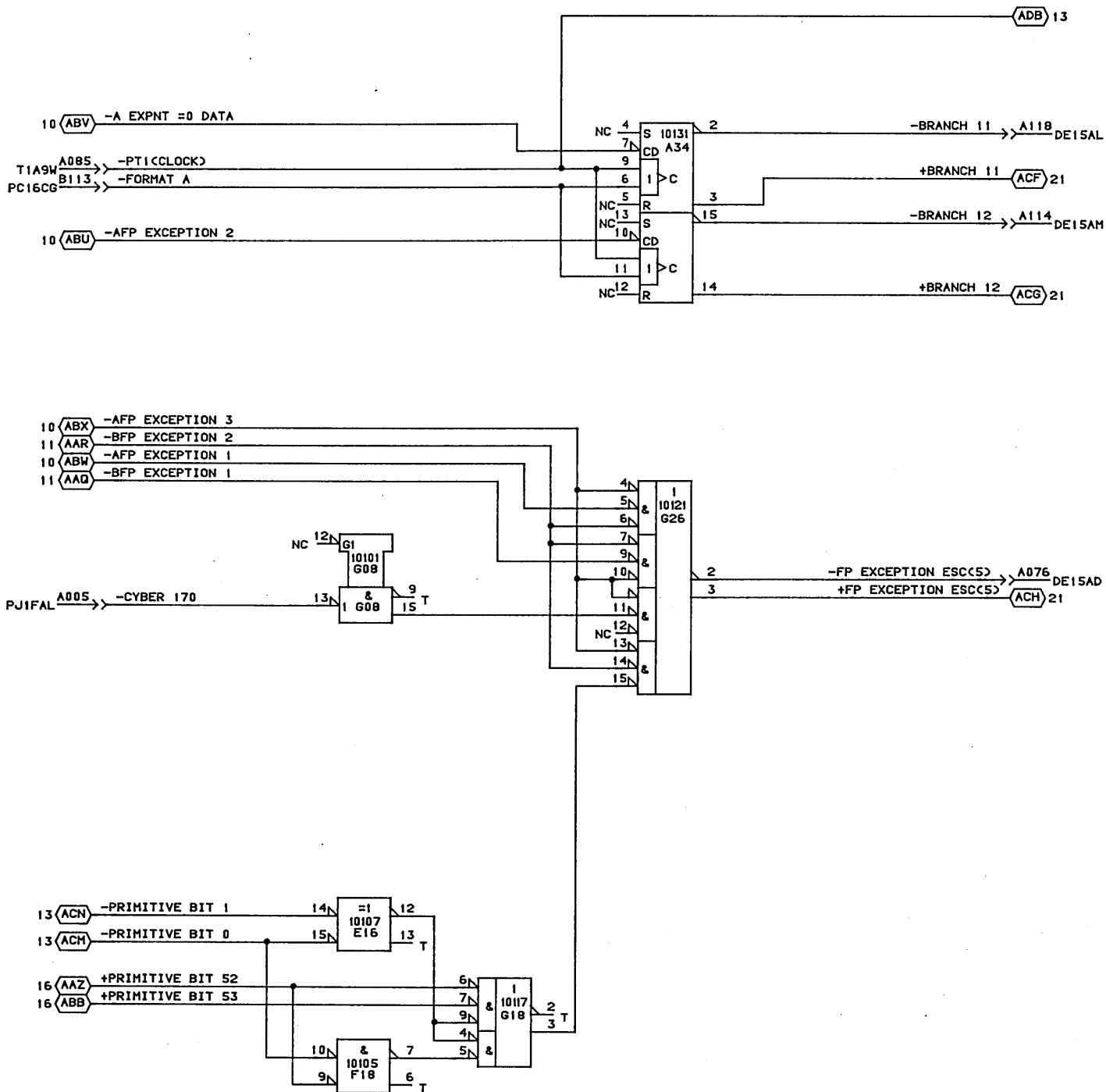






\* NOTE: SHORT

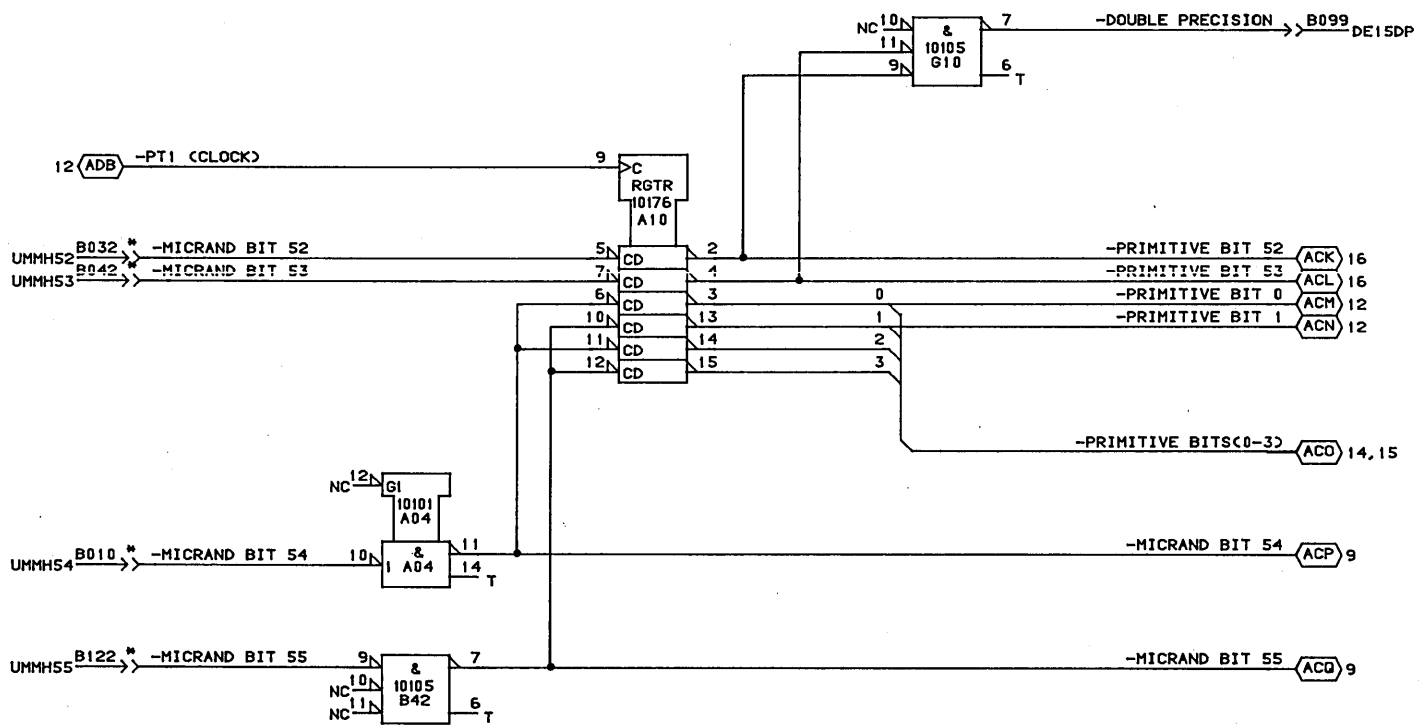
CONTROL DATA CANADA LTD	FLOATING POINT EXCEPTION LOGIC MODULE ASSY: 210 PAK TYPE: 1DE0		C			A
		06-MAR-86	SHEET 11		LOC. A09	



CONTROL  
DATA  
CANADA  
LTD

FP EXCEPTION DCDR  
MODULE ASSY:210 PAK  
TYPE: 1DE0

	C		A
06-MAR-86	SHEET 12	LOC.A09	



\* NOTE: SHORT AND NO TERMINATOR

CONTROL  
DATA  
CANADA  
LTD

FP PRIM RGTR  
MODULE ASSY: 210 PAK  
TYPE: IDE0

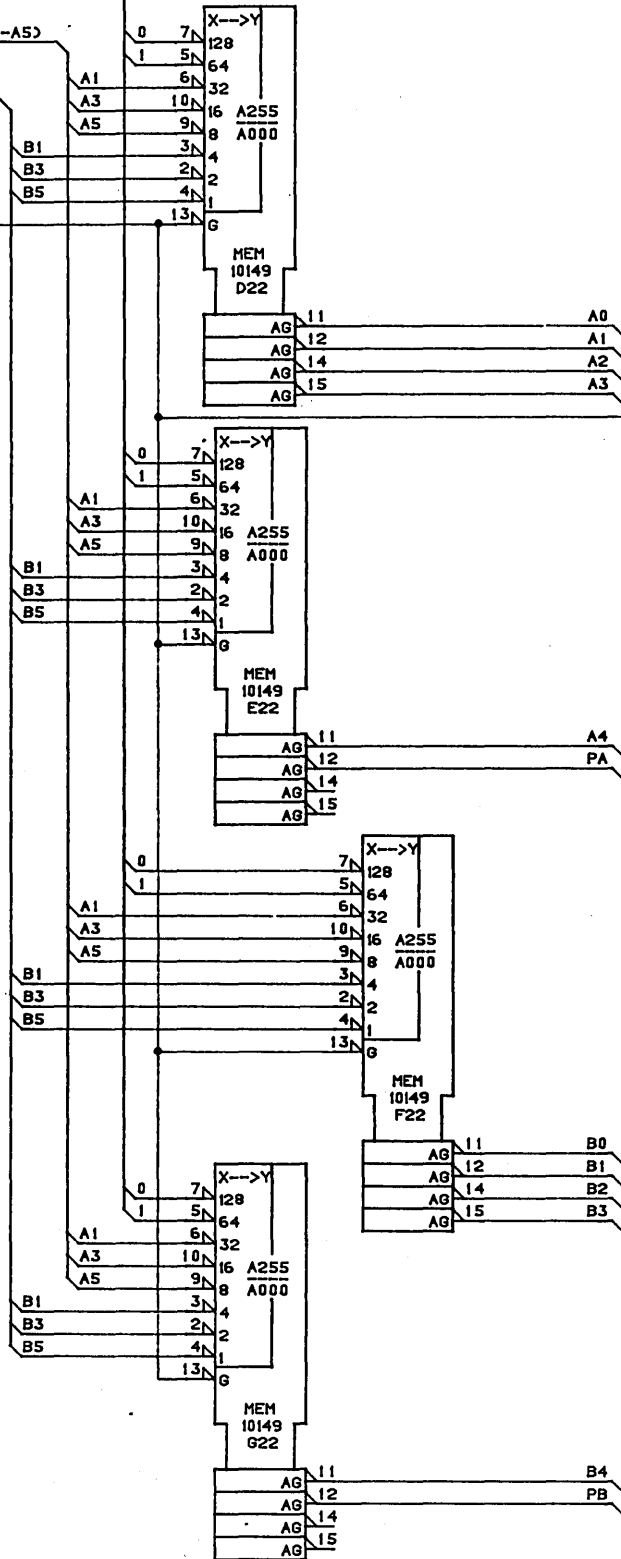
	C		A
06-MAR-86	SHEET 13	LOC.A09	

13 (ACD) -PRIMITIVE BITS (0,1)

10 (ABZ) -AD EXP ENCODE BITS (A1-A3-A5)

11 (AAD) -BD EXP ENCODE BITS (B1-B3-B5)

A036 (CPAKTEST)



(AAC) 6, 15

\* NOTE: SHORT

-EXCEPTION INDEXES BITS (A0-A4, PA), (B0-B4, PB) (AAD) 17, 18

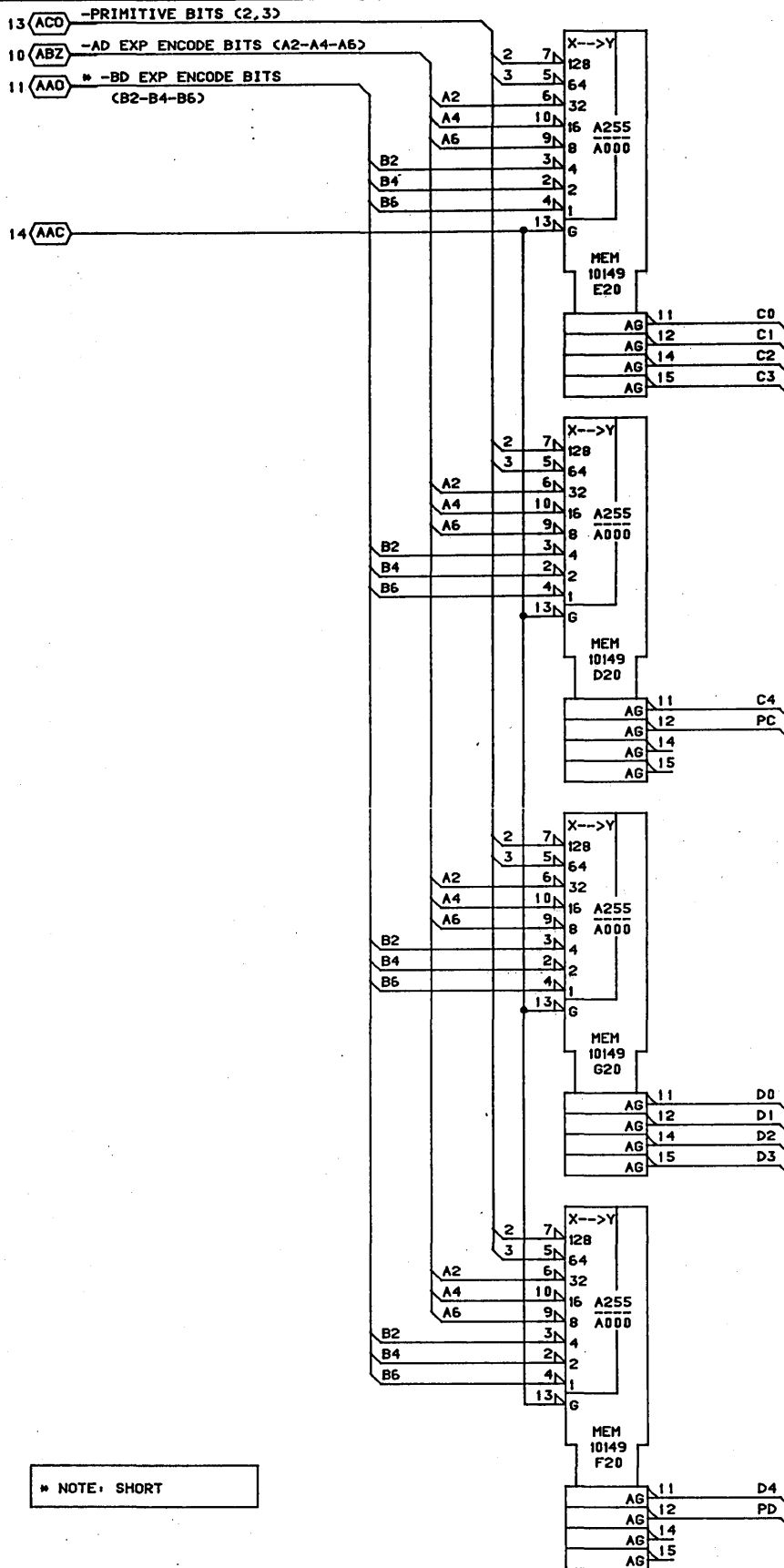
CONTROL  
DATA  
CANADA  
LTD

PP EXCEPTION INDEXES ROMS  
MODULE ASSY: 210 PAK  
TYPE: 1DE0

07-MAR-86

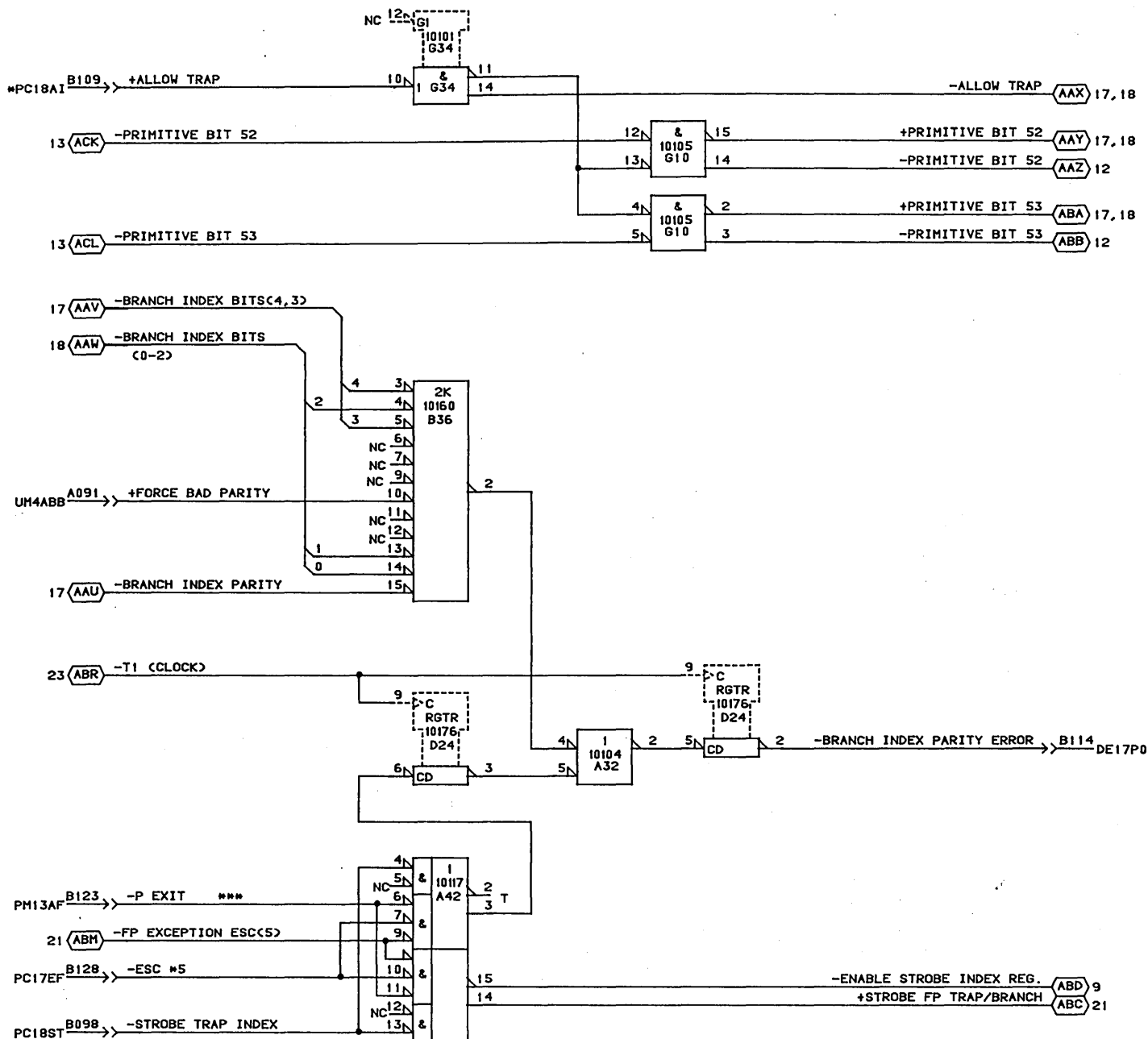
SHEET 14

LOC.A09



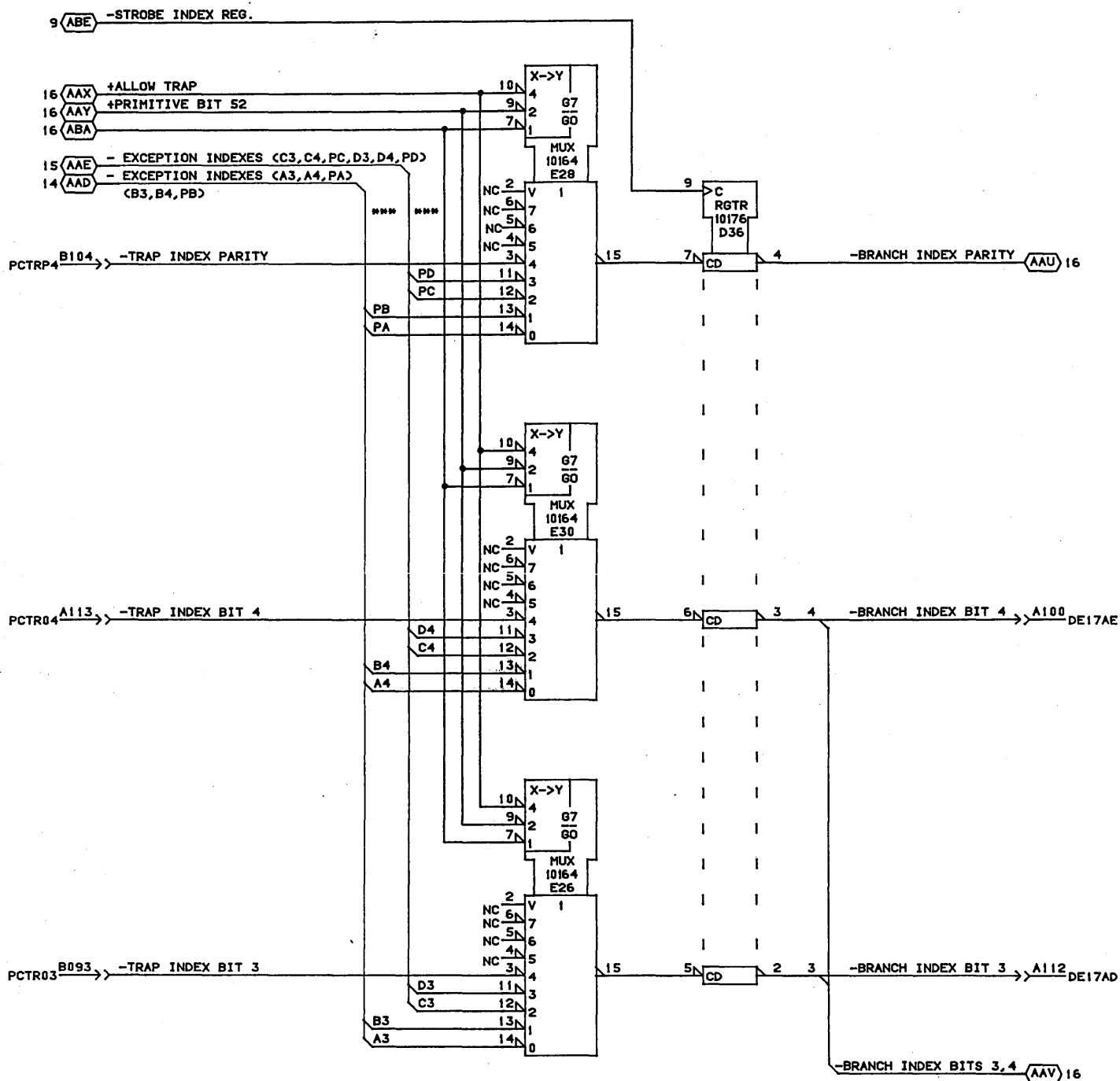
-EXCEPTION INDEXES BITS (C0-C4, PC), (D0-D4, PD) (AAE) 17, 18

CONTROL DATA CANADA LTD	PP EXCEPTION INDEXES ROMS MODULE ASSY:210 PAK TYPE: IDE0	C	A
06-MAR-86	SHEET 15	LOC.A09	



\*\*\* NOTE: SHORT AND NO TERMINATOR.

CONTROL DATA CANADA LTD	EXCEPTION INDEX SEL BRANCH INDEX PARITY CHECK MODULE ASSY:210 PAK TYPE: 1DE0		C		A
		06-MAR-86	SHEET 16	LOC.A09	



\*\*\* NOTE: SHORT

CONTROL  
DATA  
CANADA  
LTD

EXCEPTION INDEX MUX  
EXCEPTION INDEX RGTR  
MODULE ASSY: 210 PAK  
TYPE: IDEO

C

A

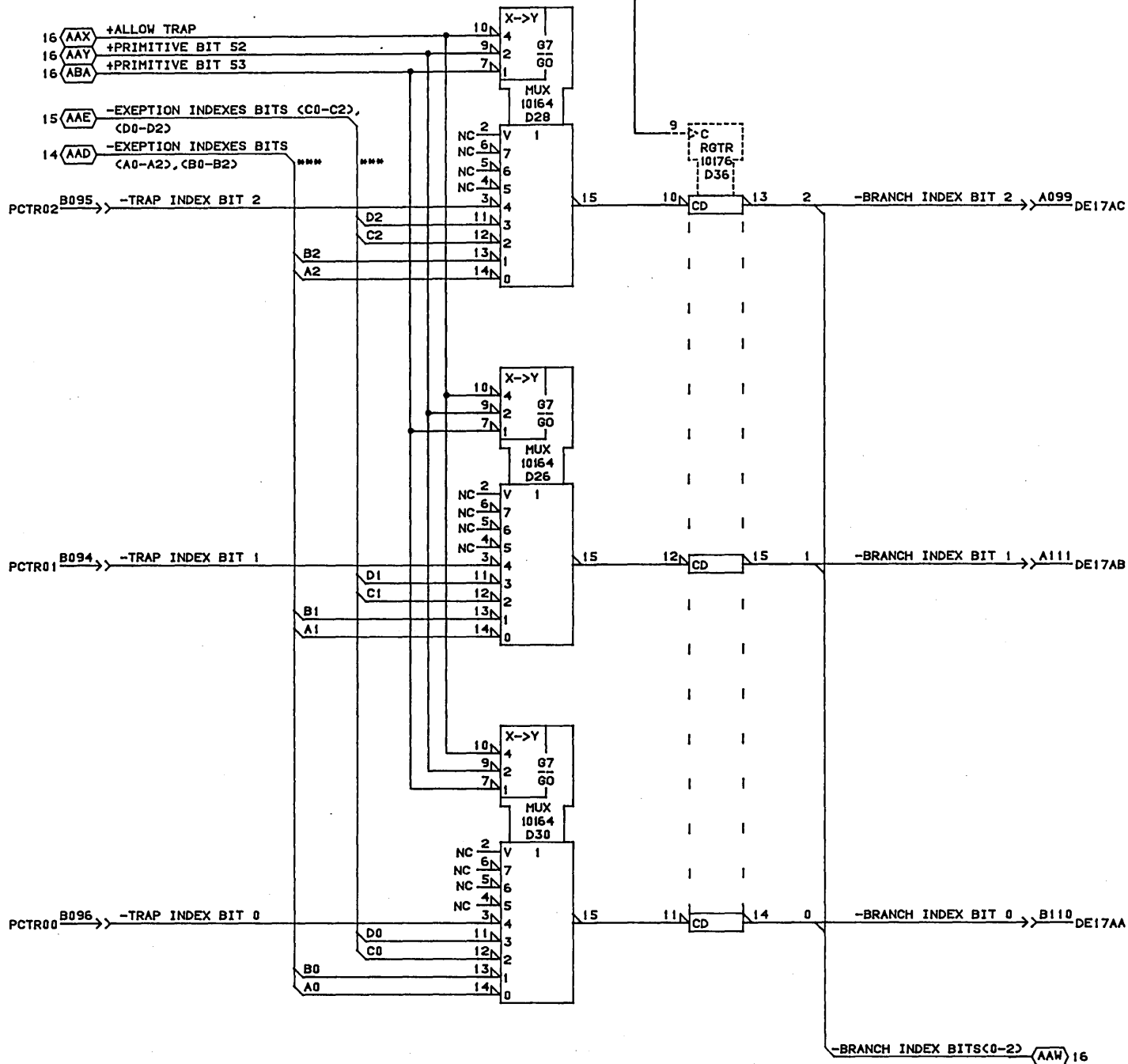
06-MAR-86

SHEET 17

LOC.A09



9 ABE -STROBE INDEX REG



\*\*\* NOTE: SHORT

CONTROL  
DATA  
CANADA  
LTD

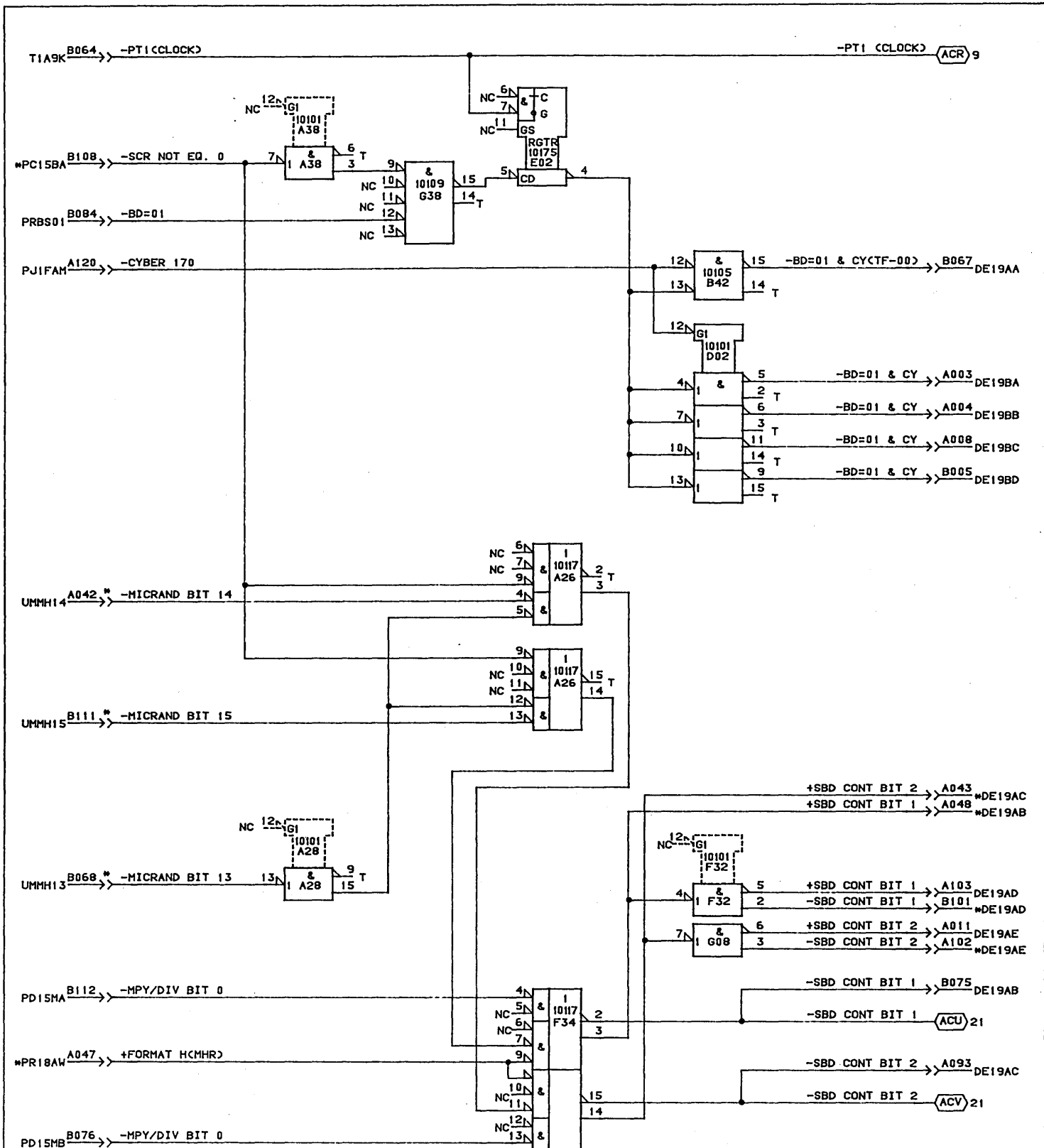
EXCEPTION INDEX MUX  
EXCEPTION INDEX RGTR  
MODULE ASSY: 210 PAK  
TYPE: 1DE0

C  
06-MAR-86

SHEET 18

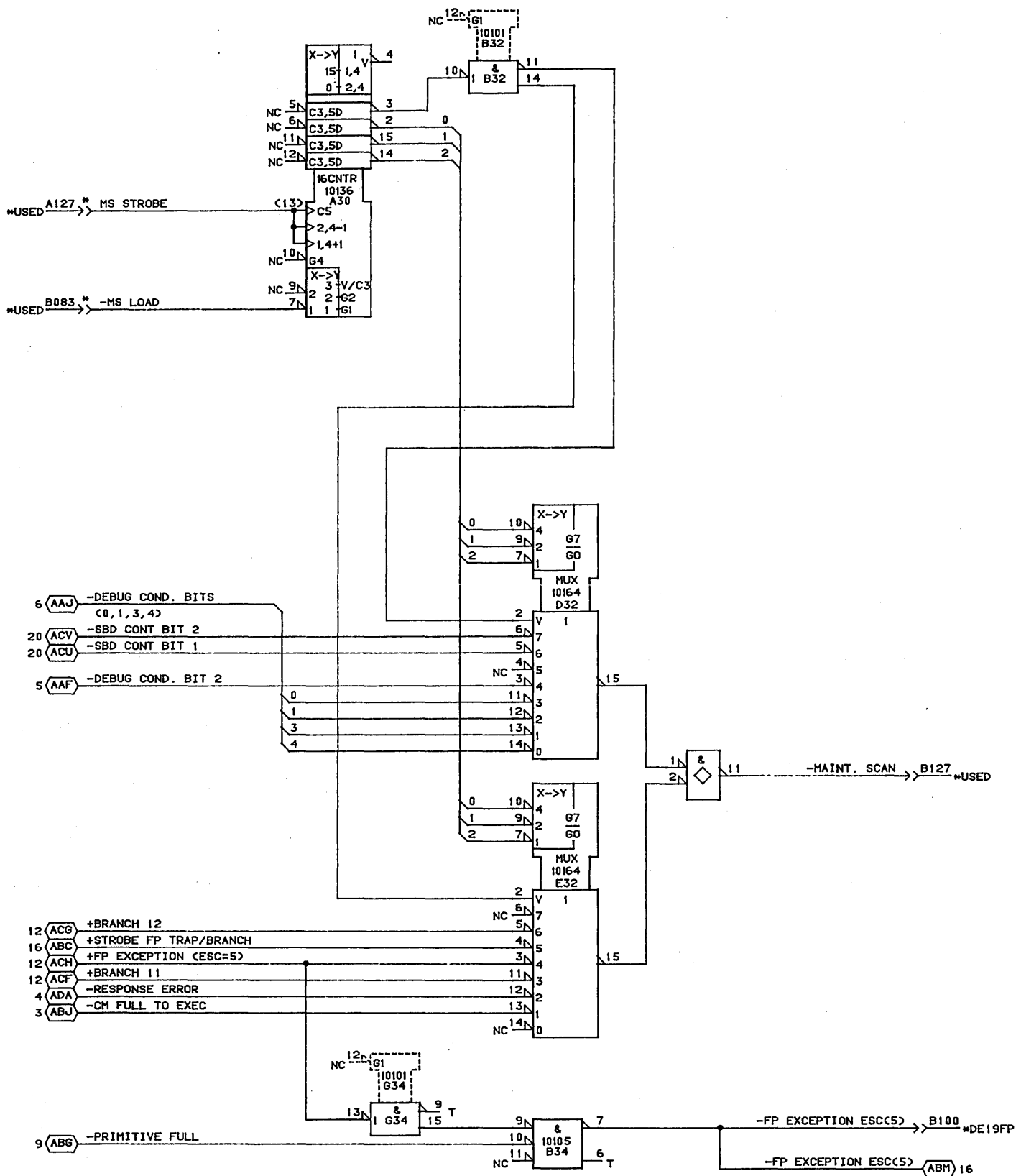
A  
LOC.A09





\* NOTE: SHORT AND NO TERMINATOR

CONTROL DATA CANADA LTD	SBD MUX CONT CKT MODULE ASSY: 210 PAK TYPE: 1DE0	C		A
		06-MAR-86	SHEET 20	



\* NOTE: SHORT AND NO TERMINATOR

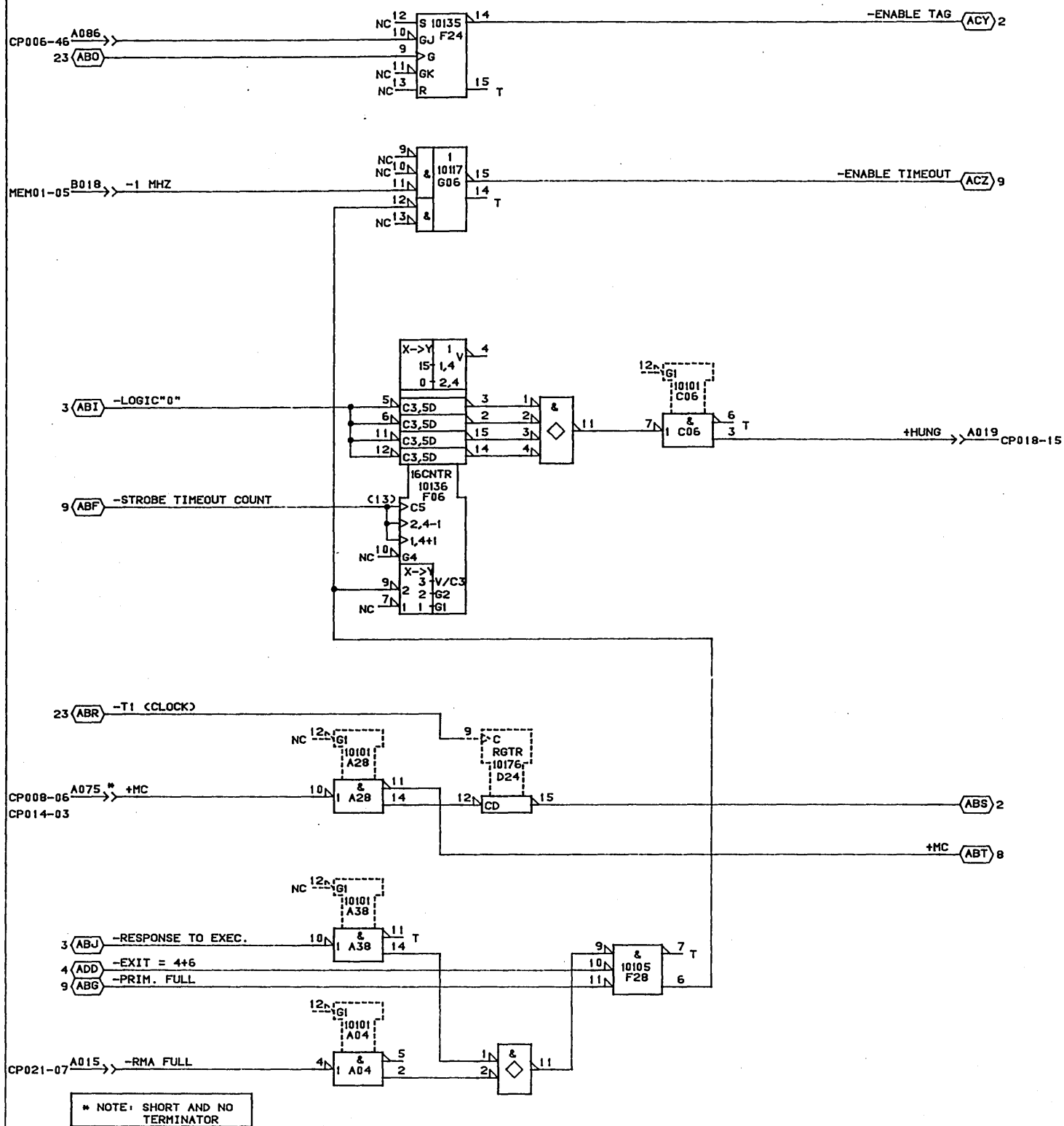
CONTROL  
DATA  
CANADA  
LTD

MAINT. SCAN  
MODULE ASSY:210 PAK  
TYPE: 1DE0

C  
06-MAR-86

SHEET 21

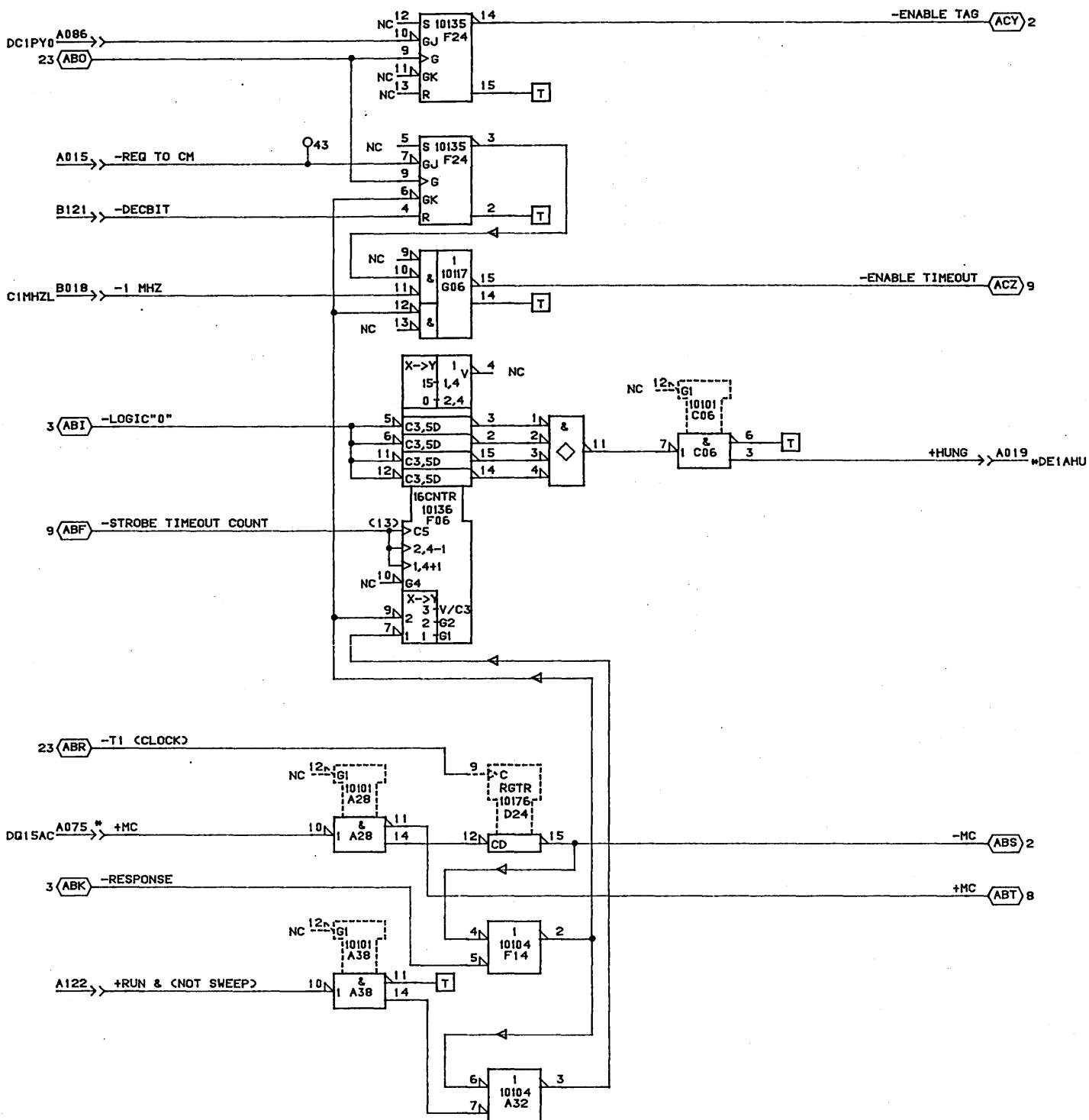
A  
LOC.A09



CONTROL  
DATA  
CANADA  
LTD

HUNG DETECTOR  
MODULE ASSY: 210 PAK  
TYPE: 1DE0

	C		A
06-MAR-86	SHEET 22	LOC. A09	



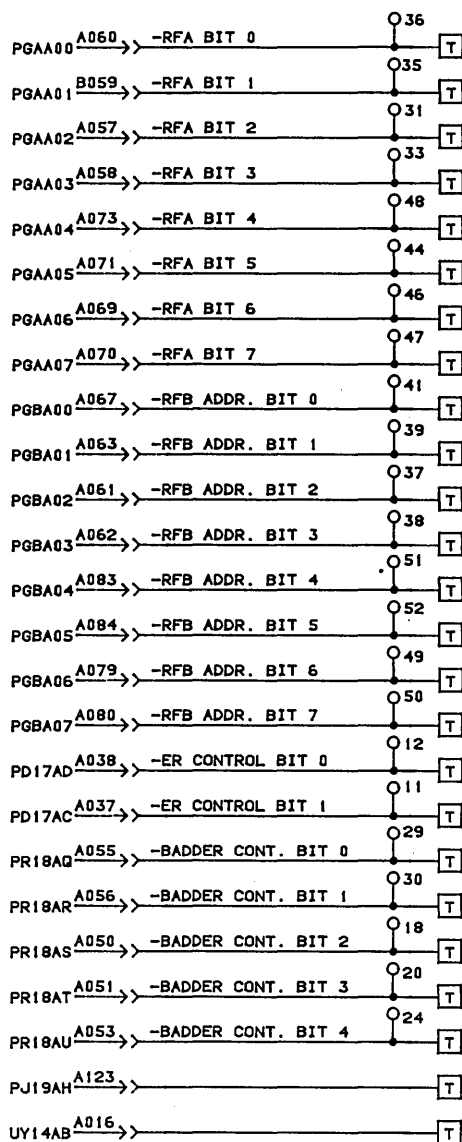
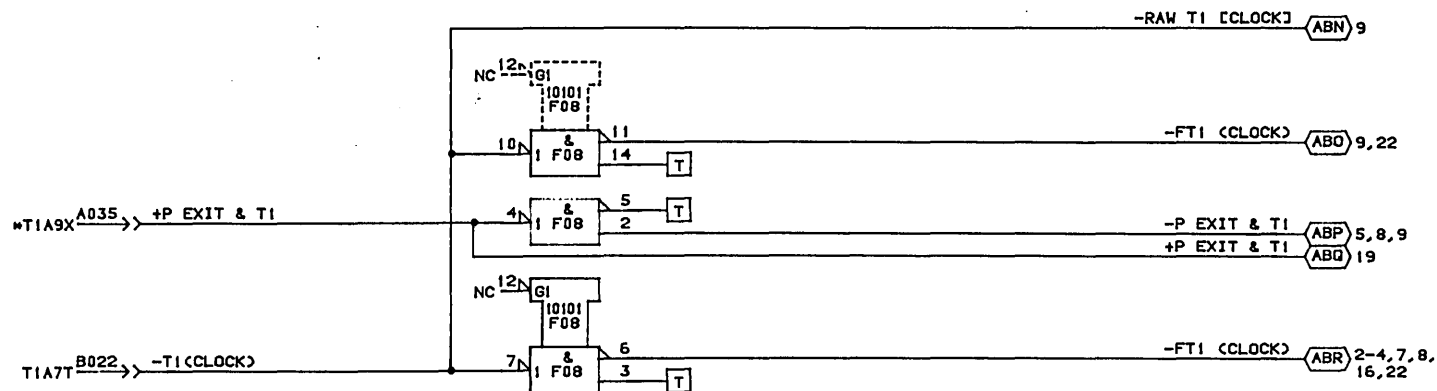
\* NOTE: SHORT AND NO TERMINATOR

NOTE:  
THIS DRAWING IS  
APPLICABLE ONLY TO  
PWB 19267978.

CONTROL  
DATA  
CANADA  
LTD

HUNG DETECTOR  
MODULE ASSY: 210 PAK  
TYPE: 1DE0

	C		B
06-MAR-86	SHEET 22A		



CONTROL  
DATA  
CANADA  
LTD

TESTPOINTS AND CLOCK FANOUTS  
MODULE ASSY:210 PAK  
TYPE: 1DE0

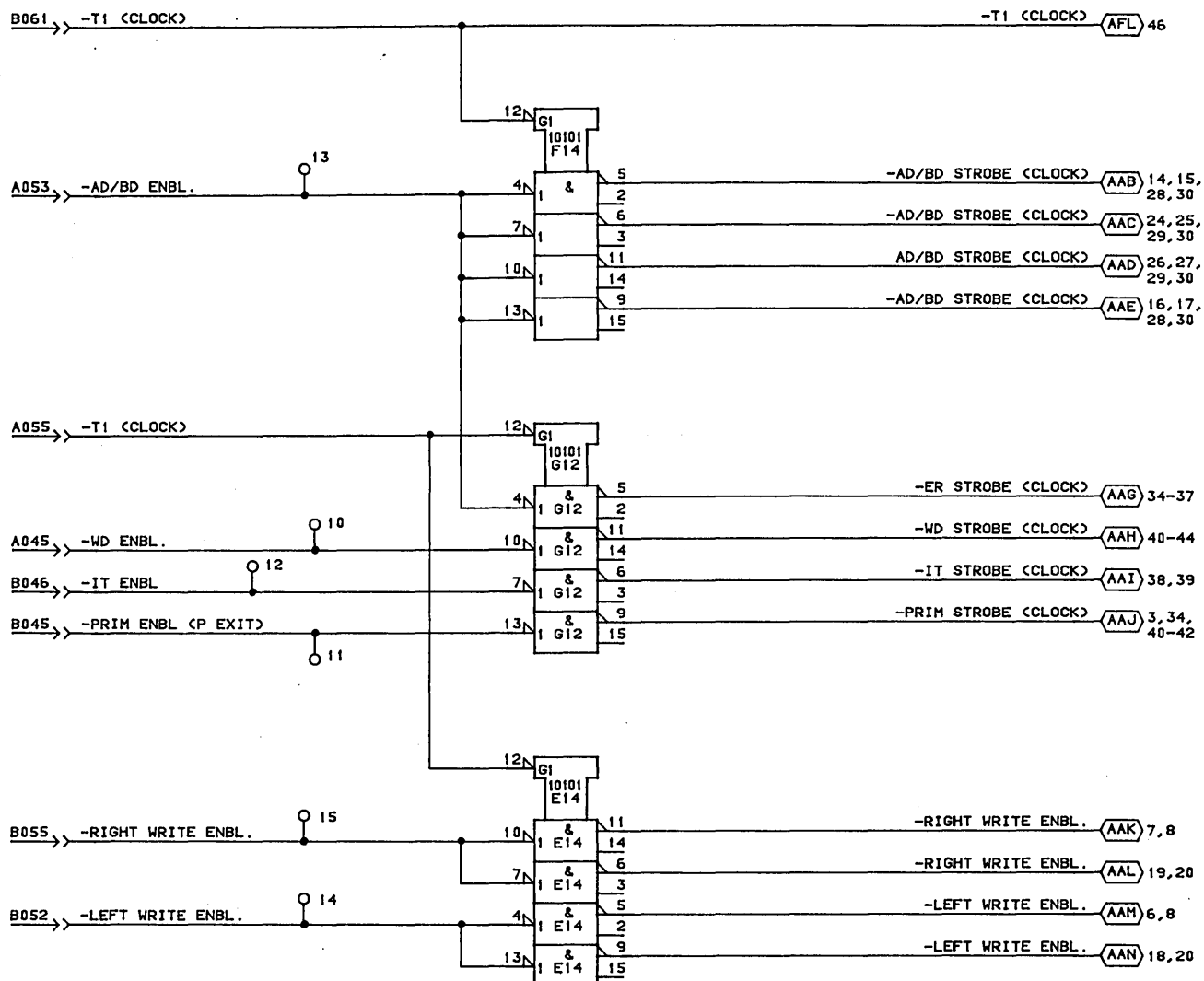
06-MAR-86 SHEET 23

C

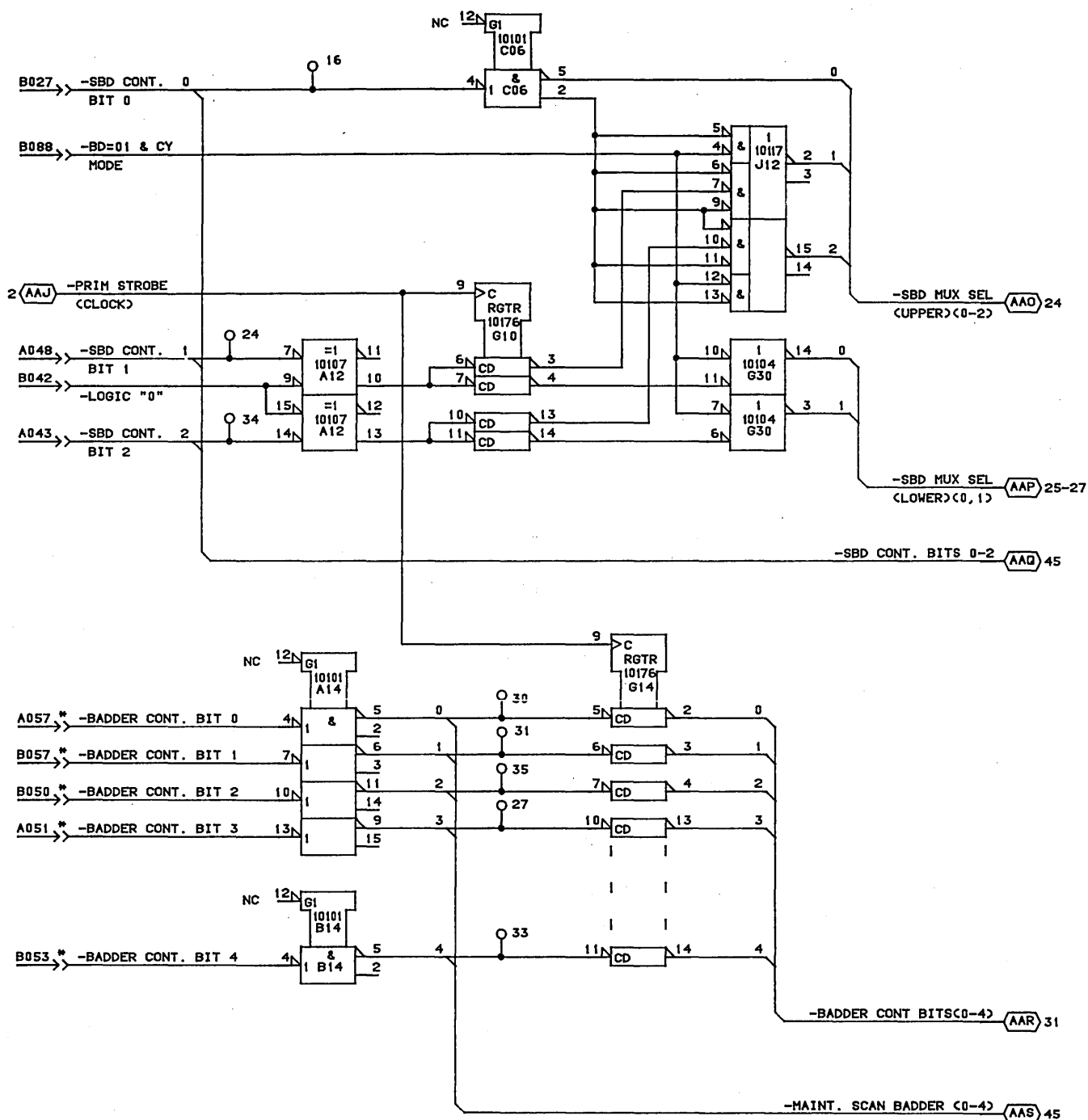
A



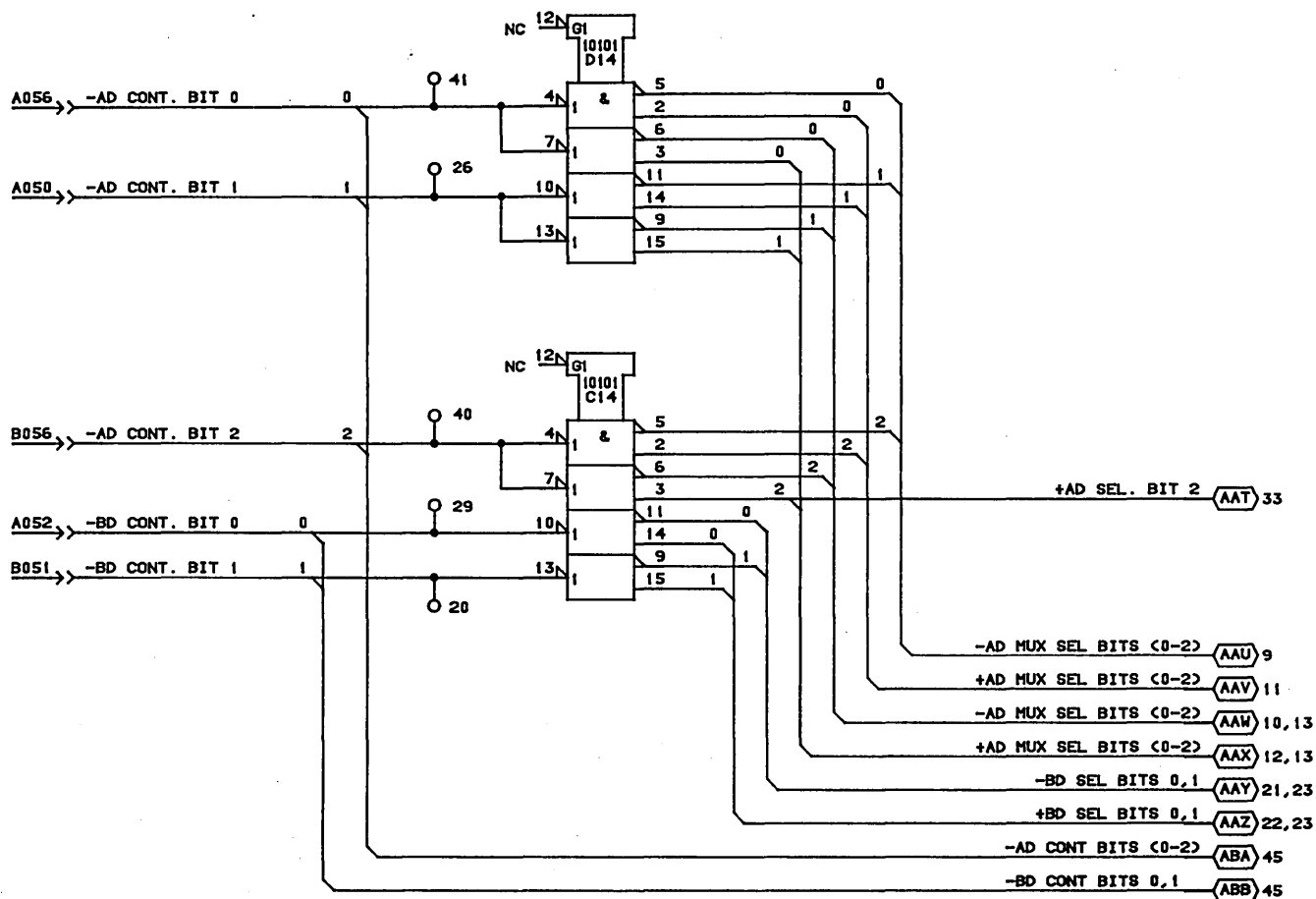


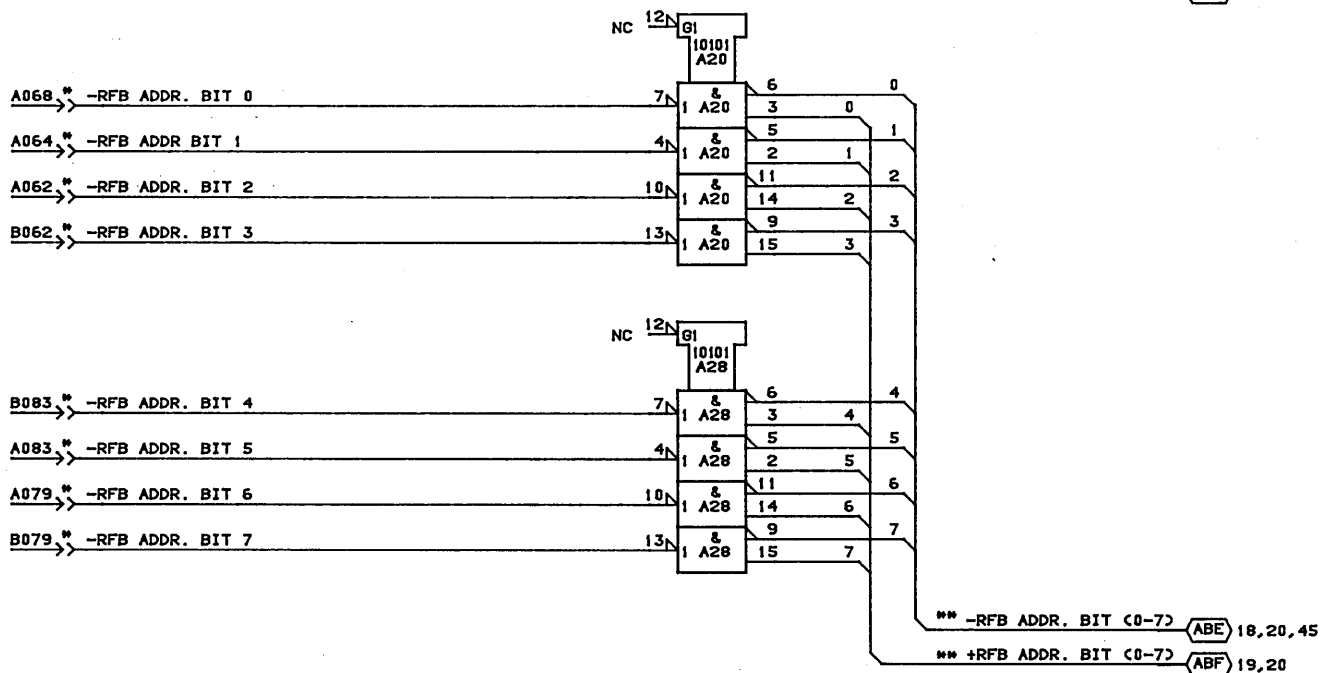
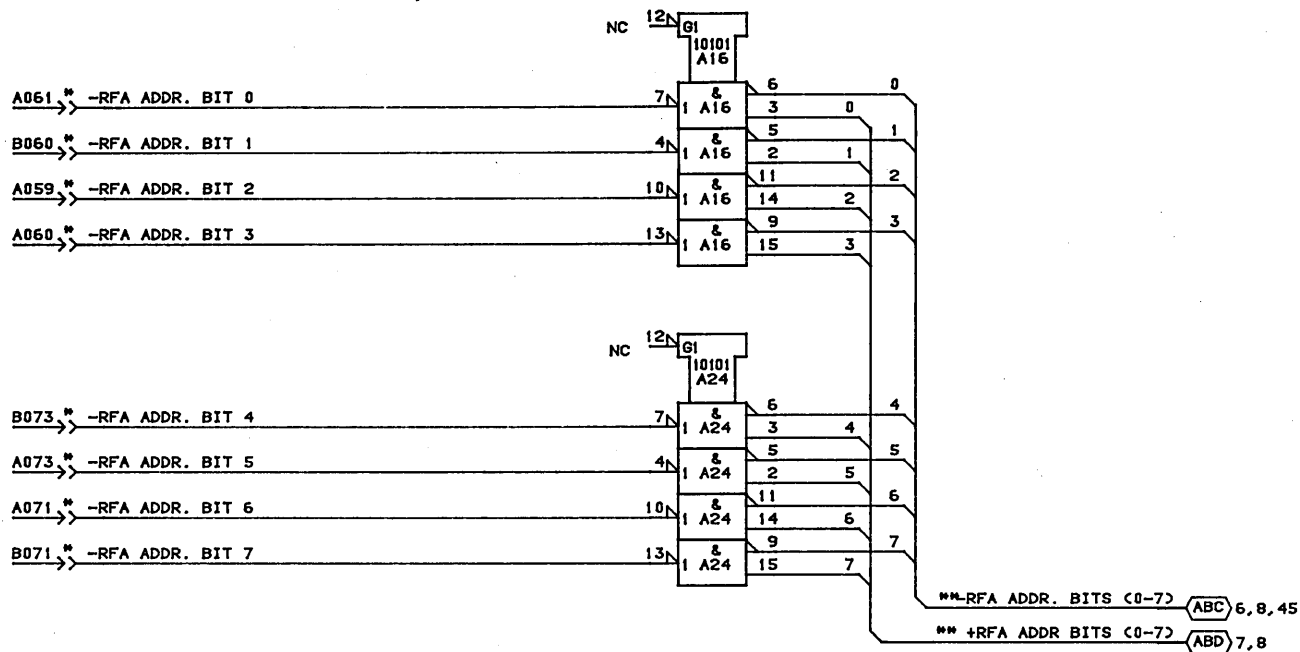


CONTROL DATA CANADA LTD	CLOCK FANOUTS MODULE ASSY: 210 PAK TYPE: 1DF0	C	23-APR-85	SHEET 02	A



\* NOTE: SHORT AND NO TERMINATOR





\* NOTE: SHORT AND NO TERMINATOR

\*\* NOTE: SHORT

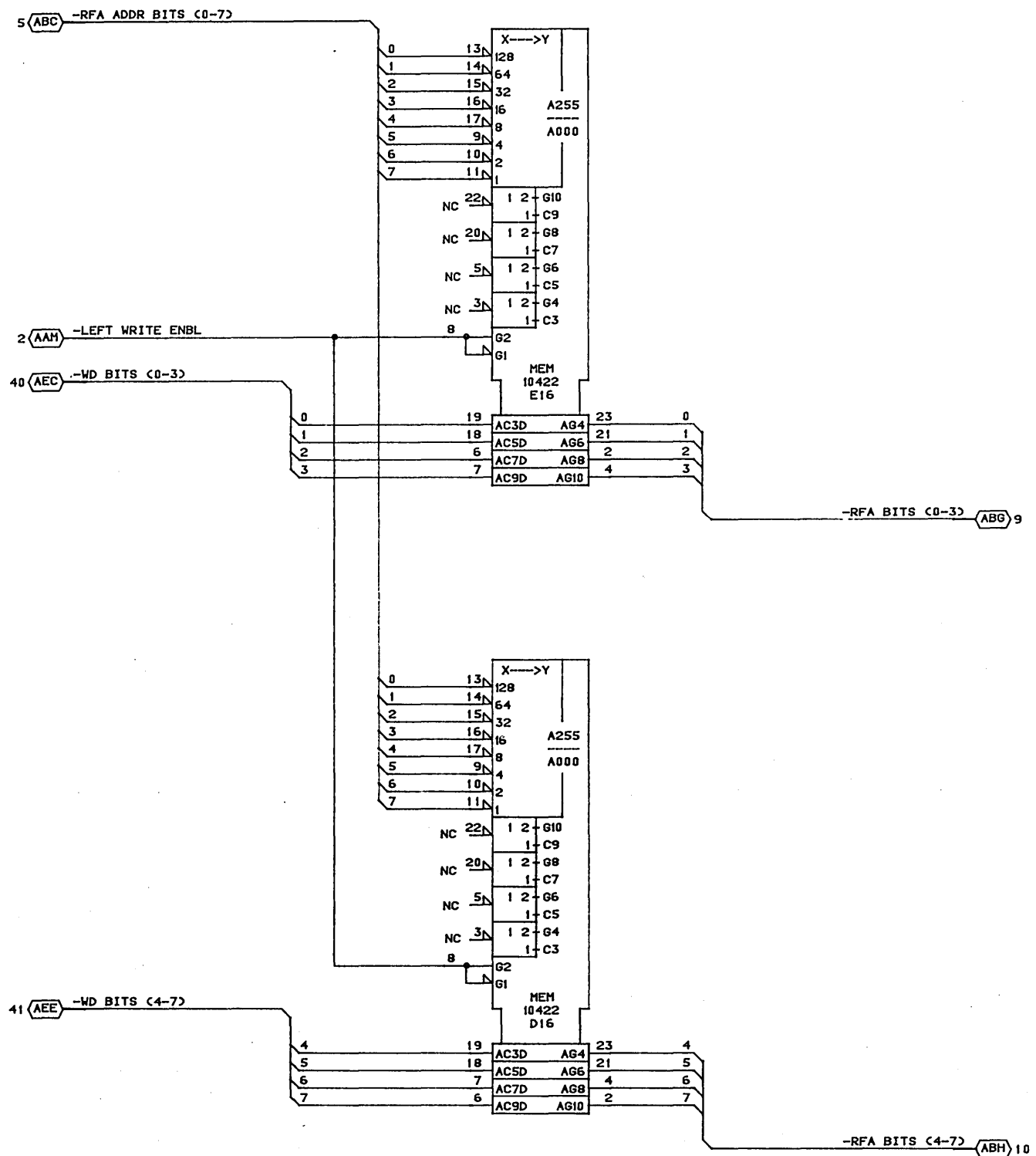
CONTROL  
DATA  
CANADA  
LTD

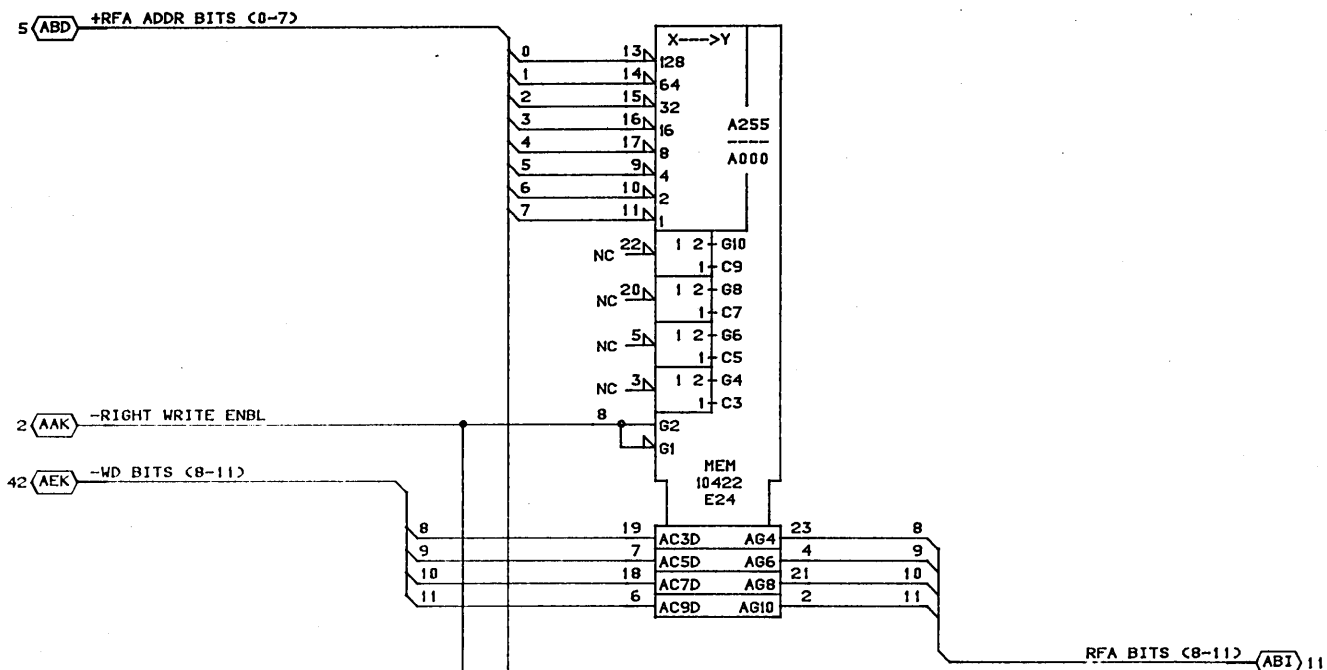
RFA,RFB ADDR.  
MODULE ASSY:210 PAK  
TYPE: 1DF0

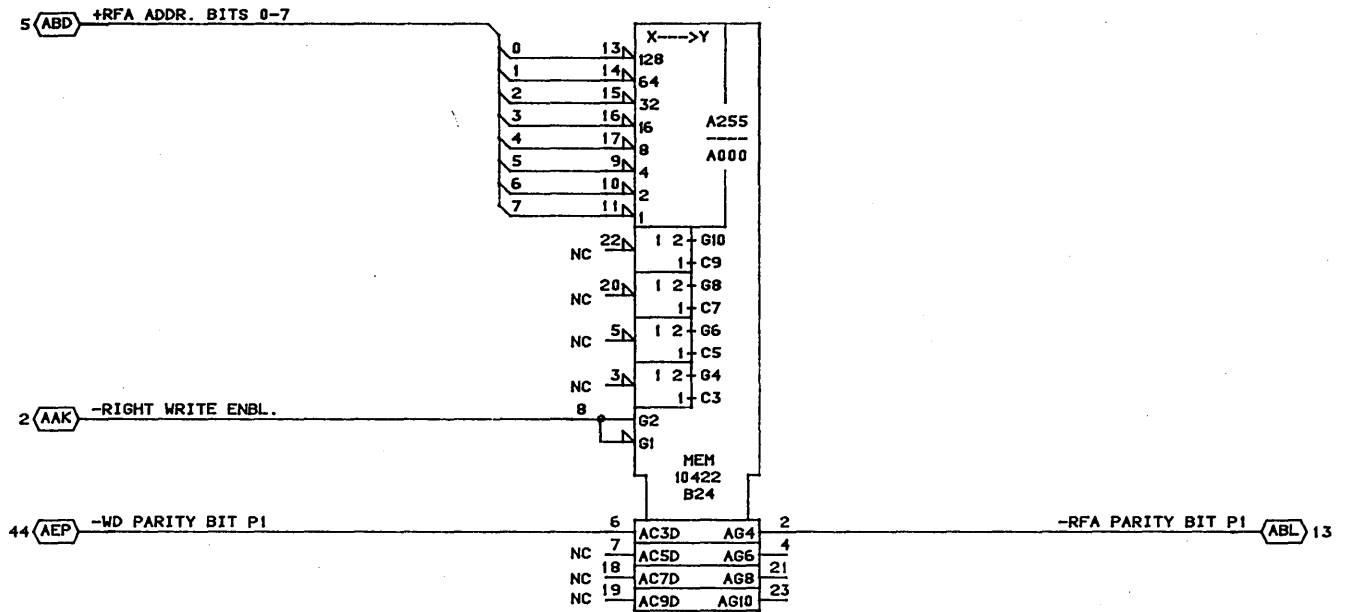
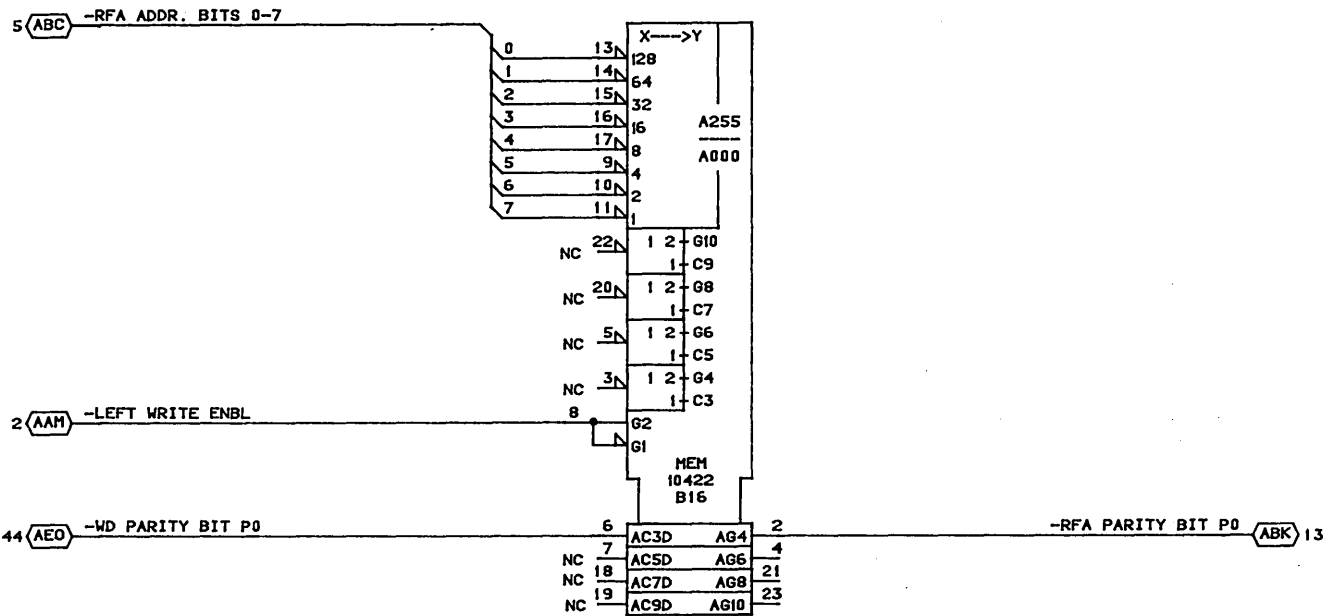
23-APR-85

SHEET 05

A







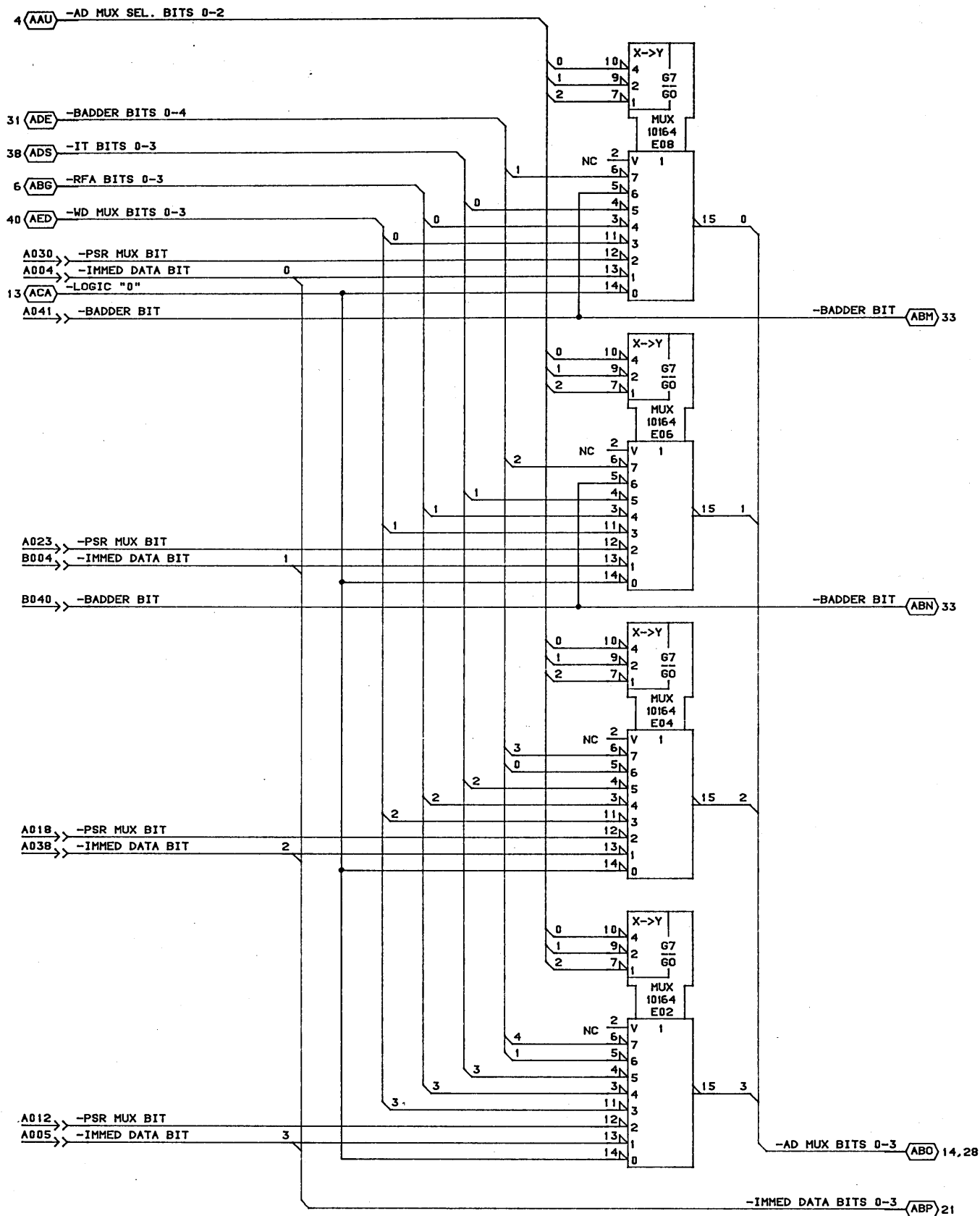
CONTROL  
DATA  
CANADA  
LTD

RFA PARITY BITS P0,P1  
MODULE ASSY:210 PAK  
TYPE: 1DF0

23-APR-85

SHEET 08

A



CONTROL  
DATA  
CANADA  
LTD

AD MUX BITS 0-3  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

C	A
23-APR-85	SHEET 09



4(AAW) -AD MUX SEL. BITS 0-2

31(ADE) -BADDR BITS 2-8

38(ADS) -IT BITS 4-7

6(ABH) -RFA BITS 4-7

41(AEF) -WD MUX BITS 4-7

A031 -PSR MUX BIT

B048 -IMMED DATA BIT

13(ACA) -LOGIC "0"

A025 -PSR MUX BIT

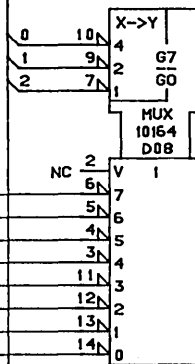
A003 -IMMED DATA BIT

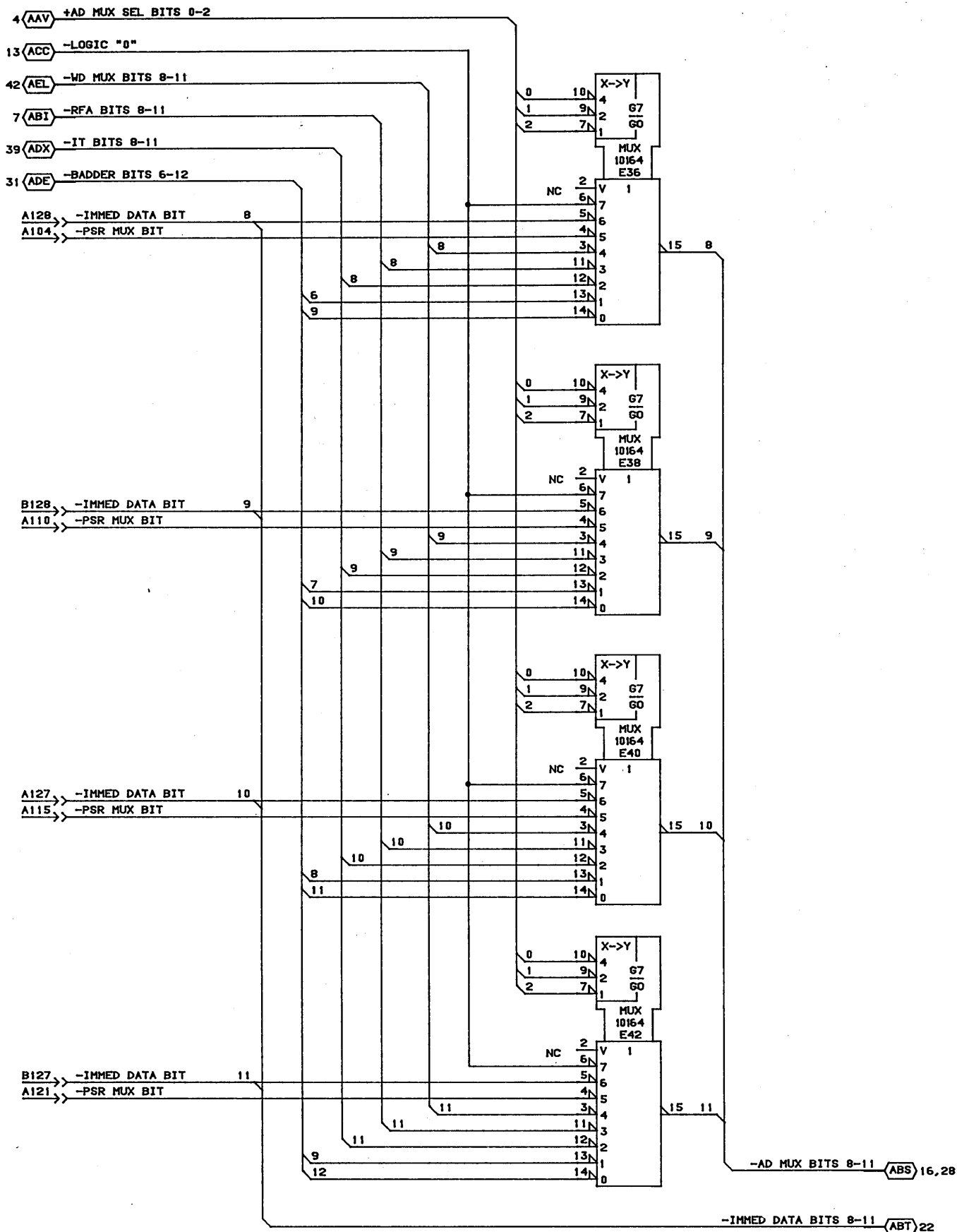
B018 -PSR MUX BIT

A040 -IMMED DATA BIT

A013 -PSR MUX BIT

B003 -IMMED DATA BIT





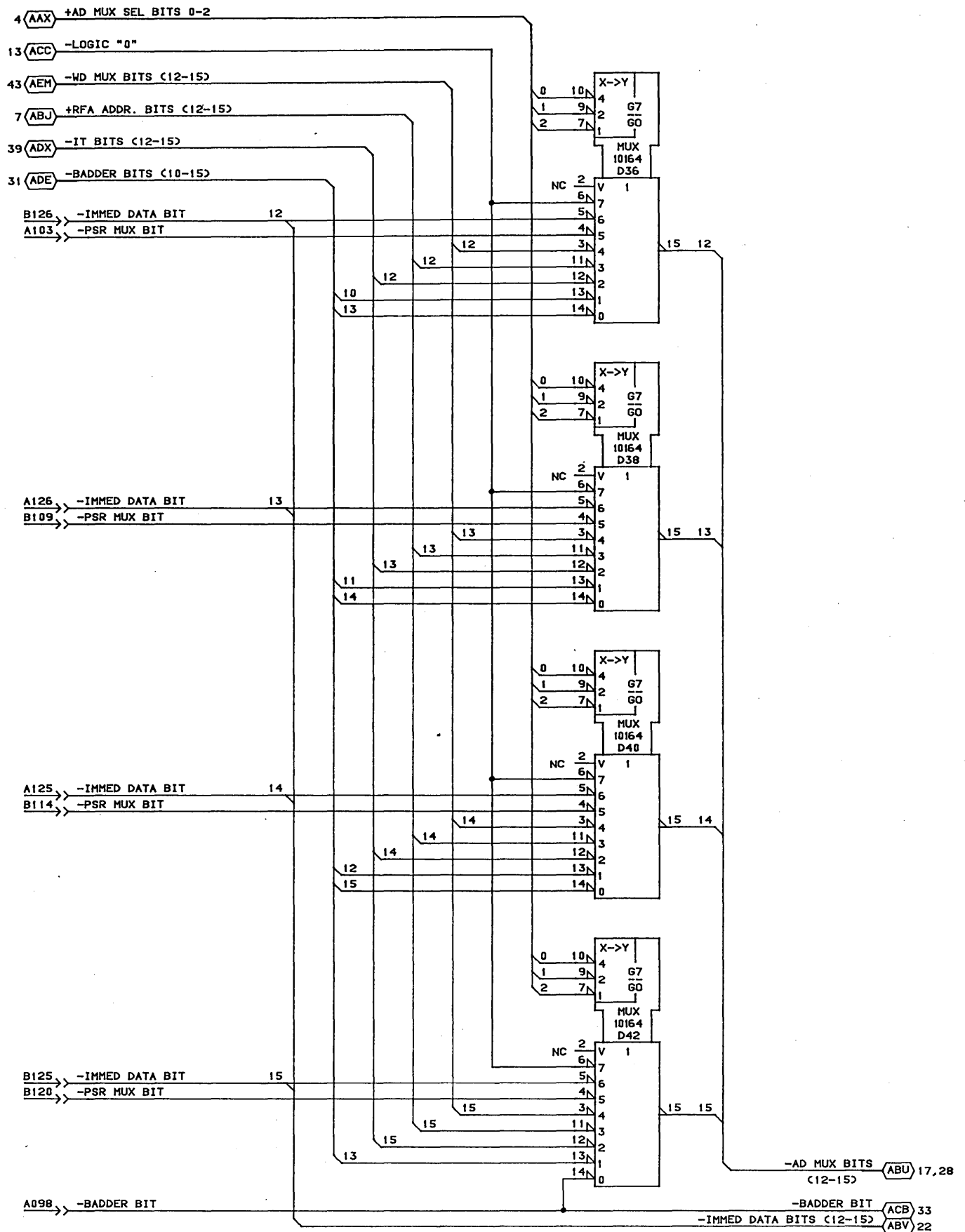
CONTROL  
DATA  
CANADA  
LTD

AD MUX BITS 8-11  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

23-APR-85

SHEET 11

A



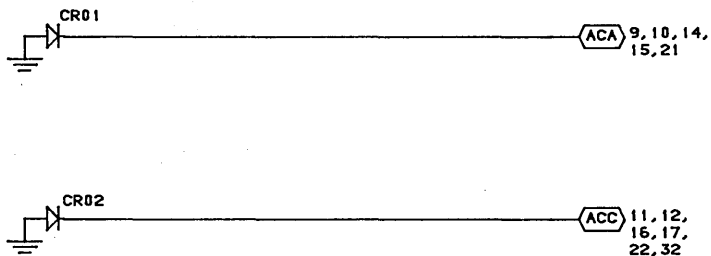
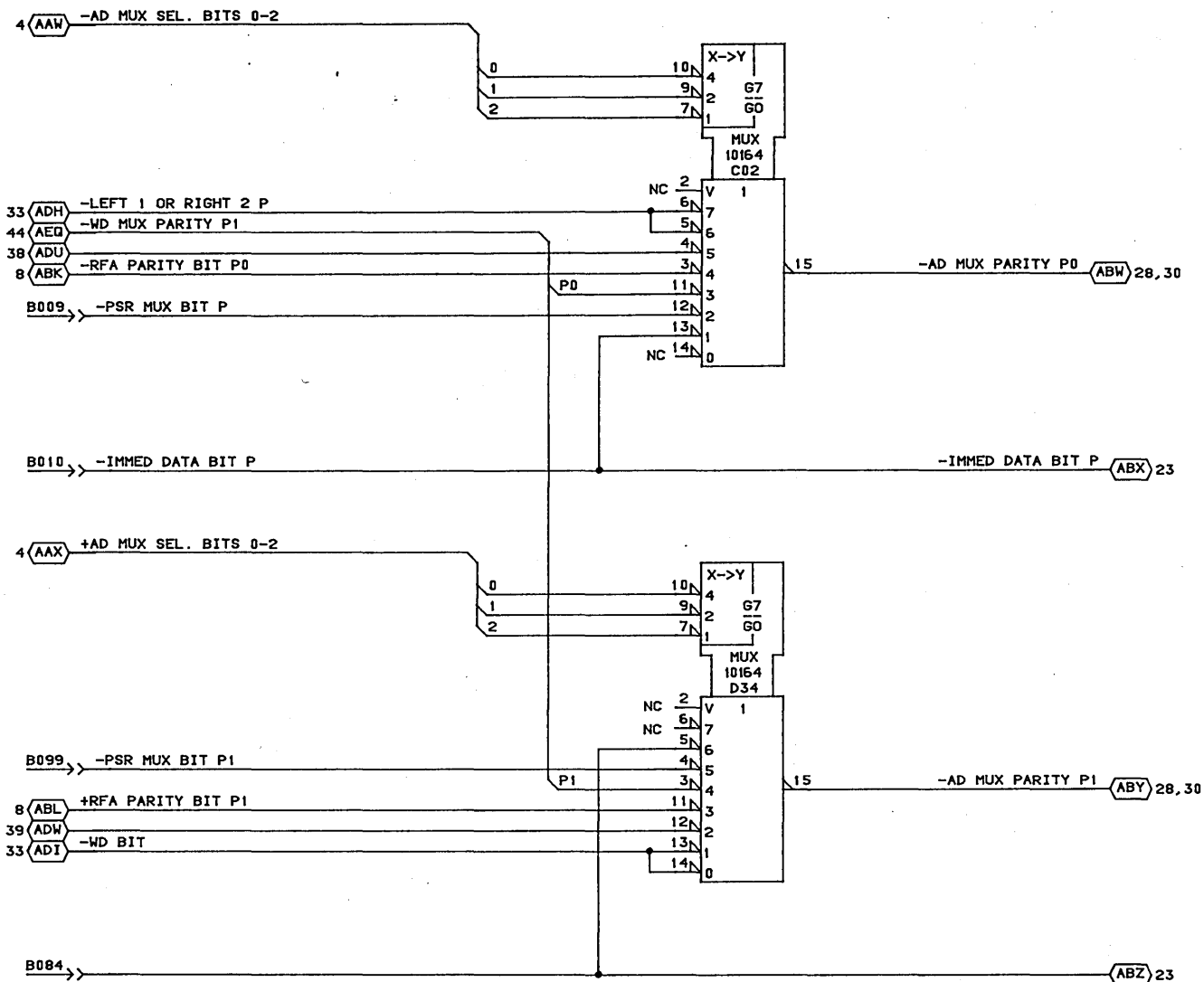
CONTROL  
DATA  
CANADA  
LTD

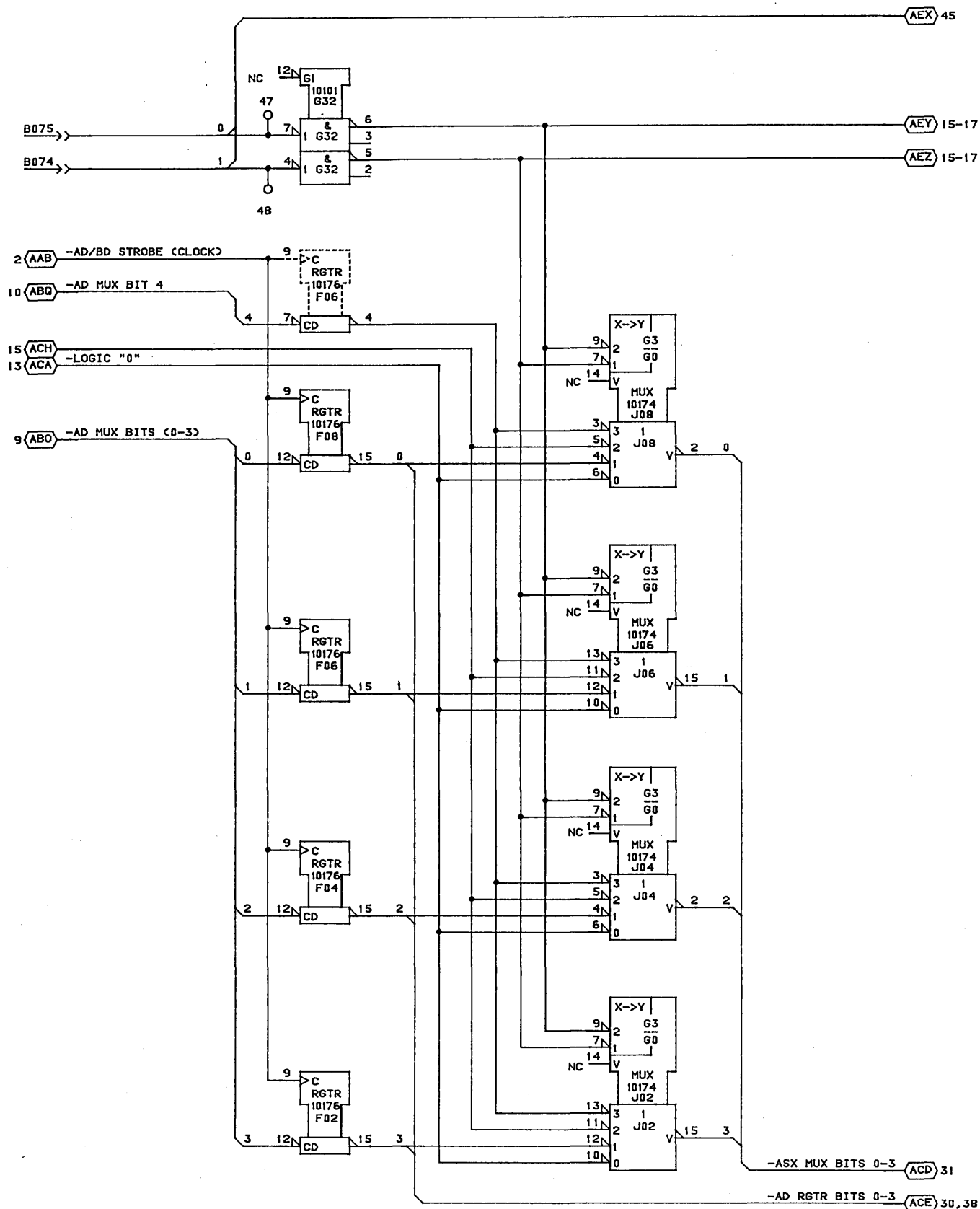
AD MUX BITS 12-15  
MODULE ASSY: 210 PAK  
TPYE: 1DF0

23-APR-85

SHEET 12

A





CONTROL  
 DATA  
 CANADA  
 LTD

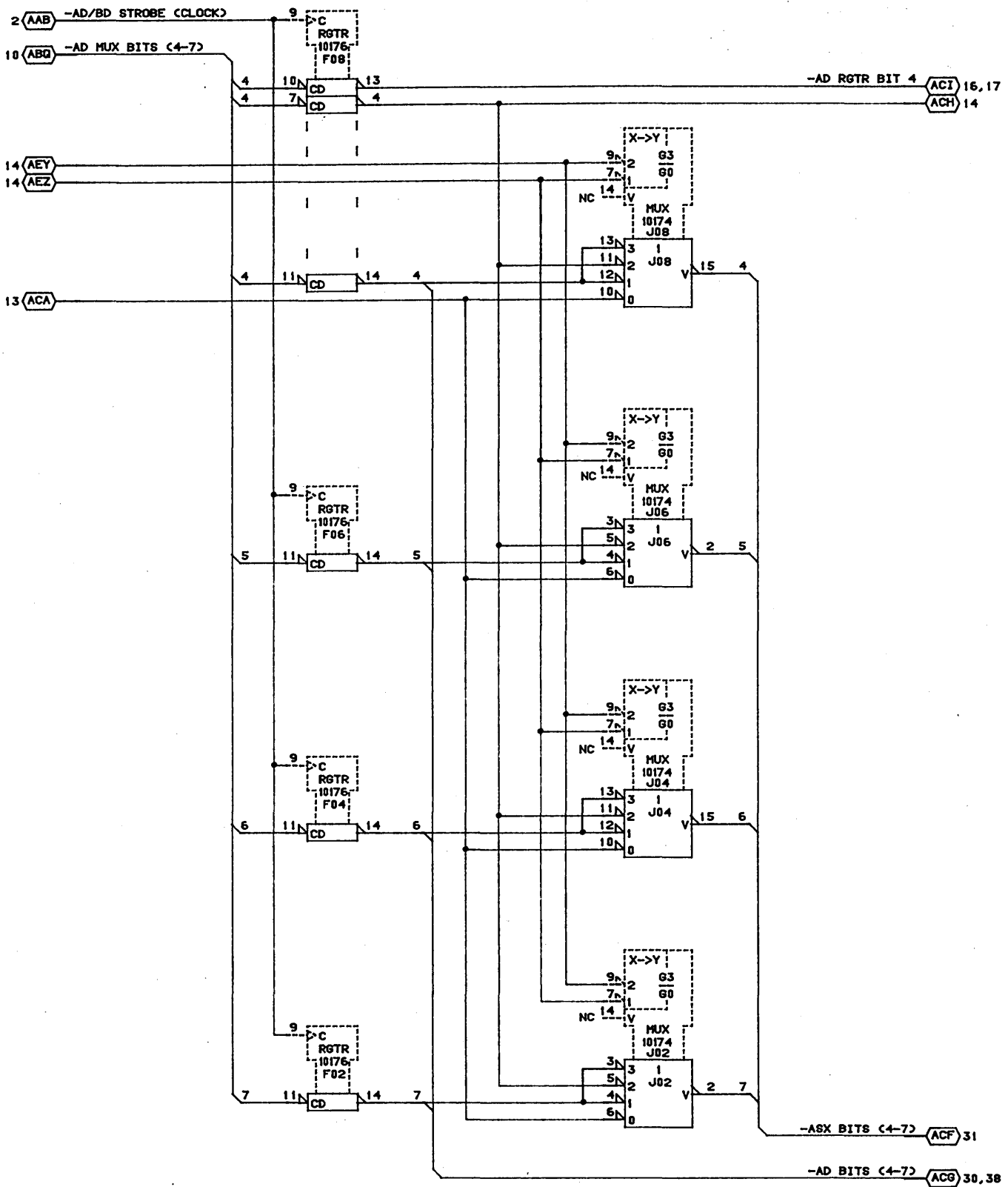
ASX MUX BIT 0-3  
 MODULE ASSY: 210 PAK  
 TYPE: 1DF0

23-APR-85

SHEET 14

C

A



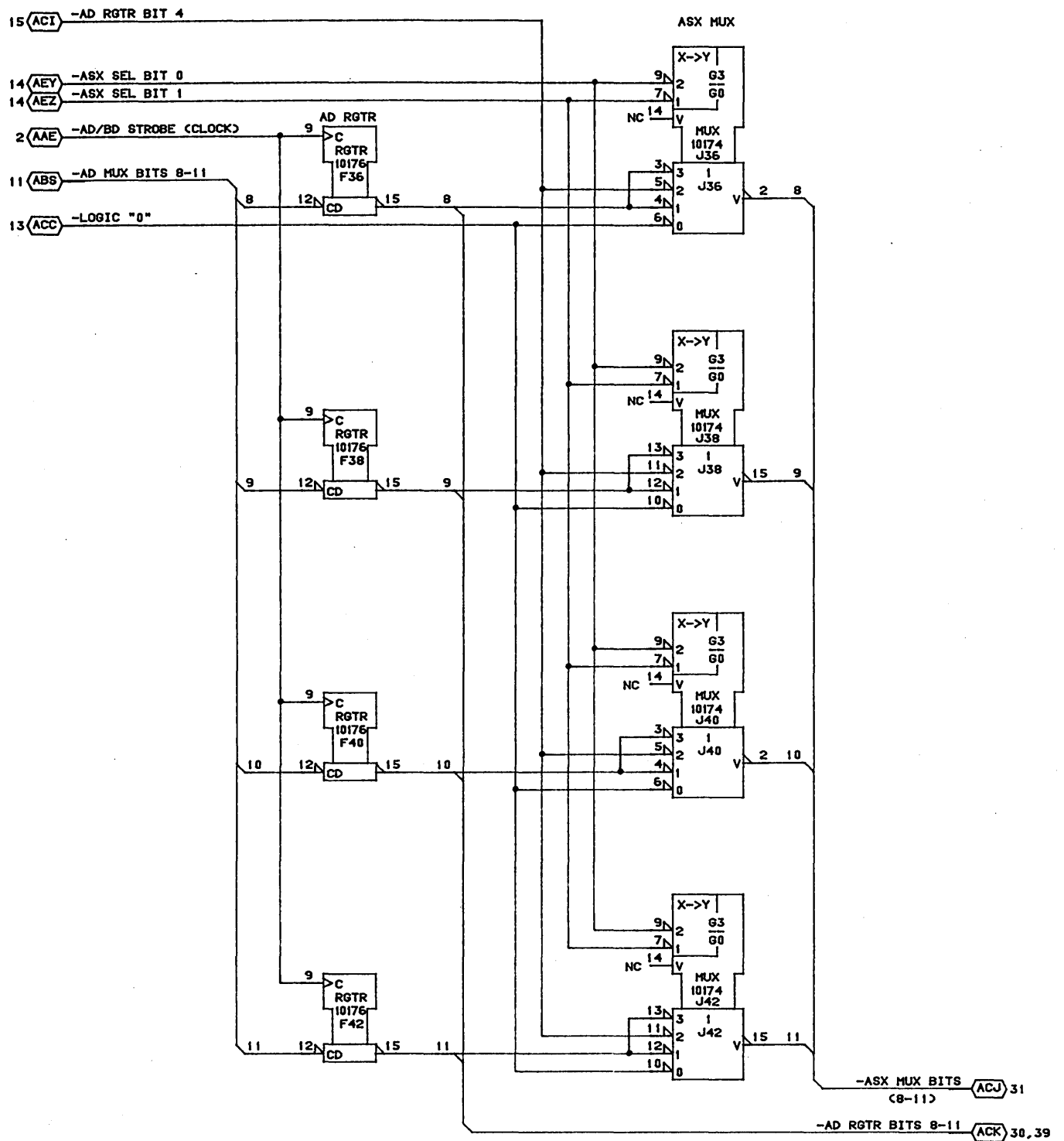
CONTROL  
DATA  
CANADA  
LTD

ASX MUX BITS 4-7  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

23-APR-85

SHEET 15

A



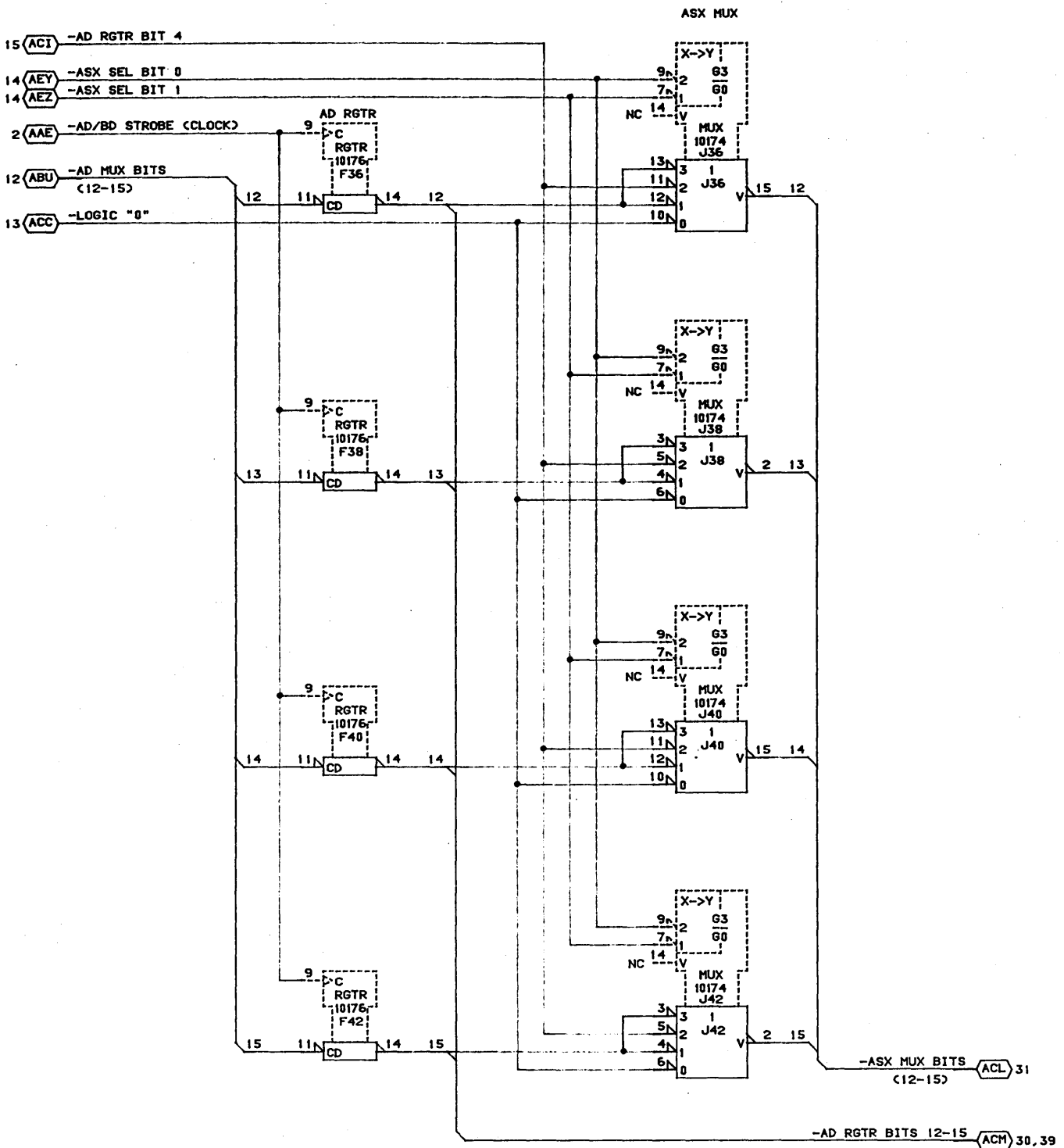
CONTROL  
DATA  
CANADA  
LTD

ASX MUX BITS 8-11  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

23-APR-85

SHEET 16

A



CONTROL  
DATA  
CANADA  
LTD

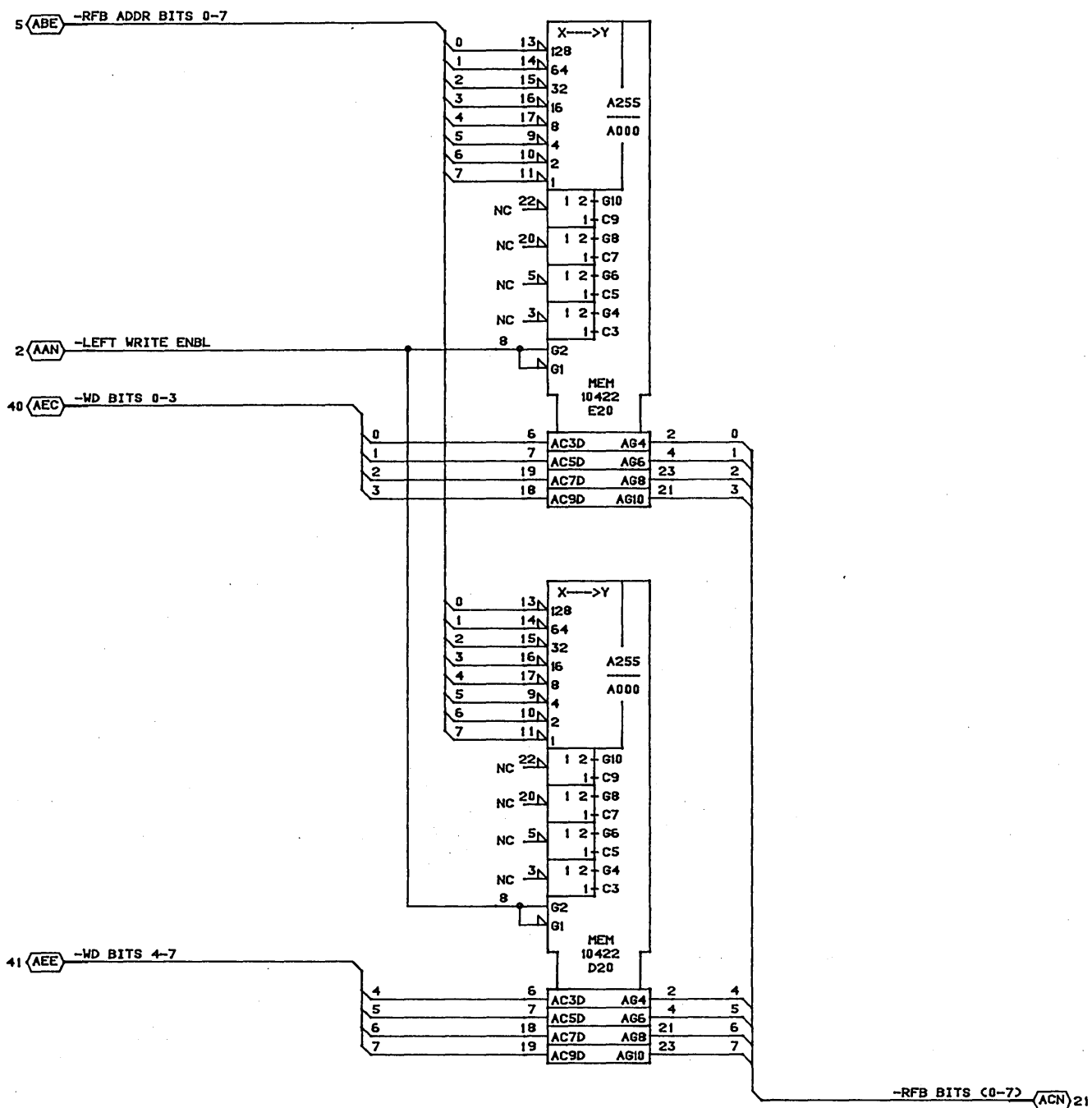
ASX MUX BITS 12-15  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

23-APR-85

SHEET 17

A





CONTROL  
DATA  
CANADA  
LTD

RFB BITS 0-7  
MODULE ASSY:210 PAK  
TYPE :1DF0

23-APR-85

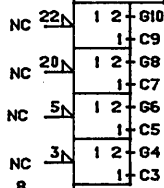
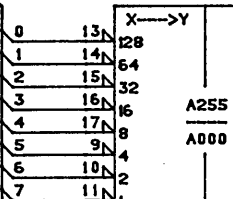
SHEET 18

C

A

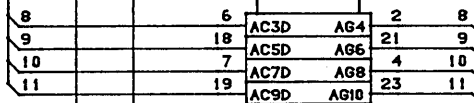
5 ABF +RFB ADDR. BITS 0-7

RFB

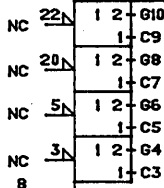
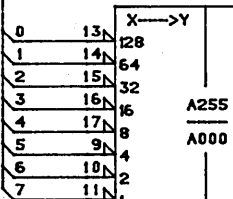


2 AAL -RIGHT WRITE ENBL

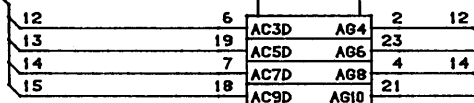
42 AEK -WD BITS 8-11



RFB



43 AEN -WD BITS 12-15



+RFB BIT 13 AFH 22

+RFB BIT 15 AFI 22

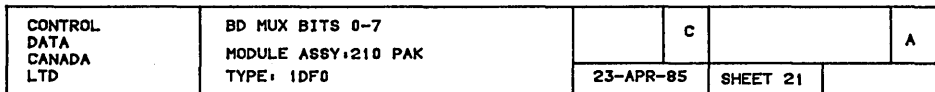
+RFB BITS 8-12, 14 ACD 22

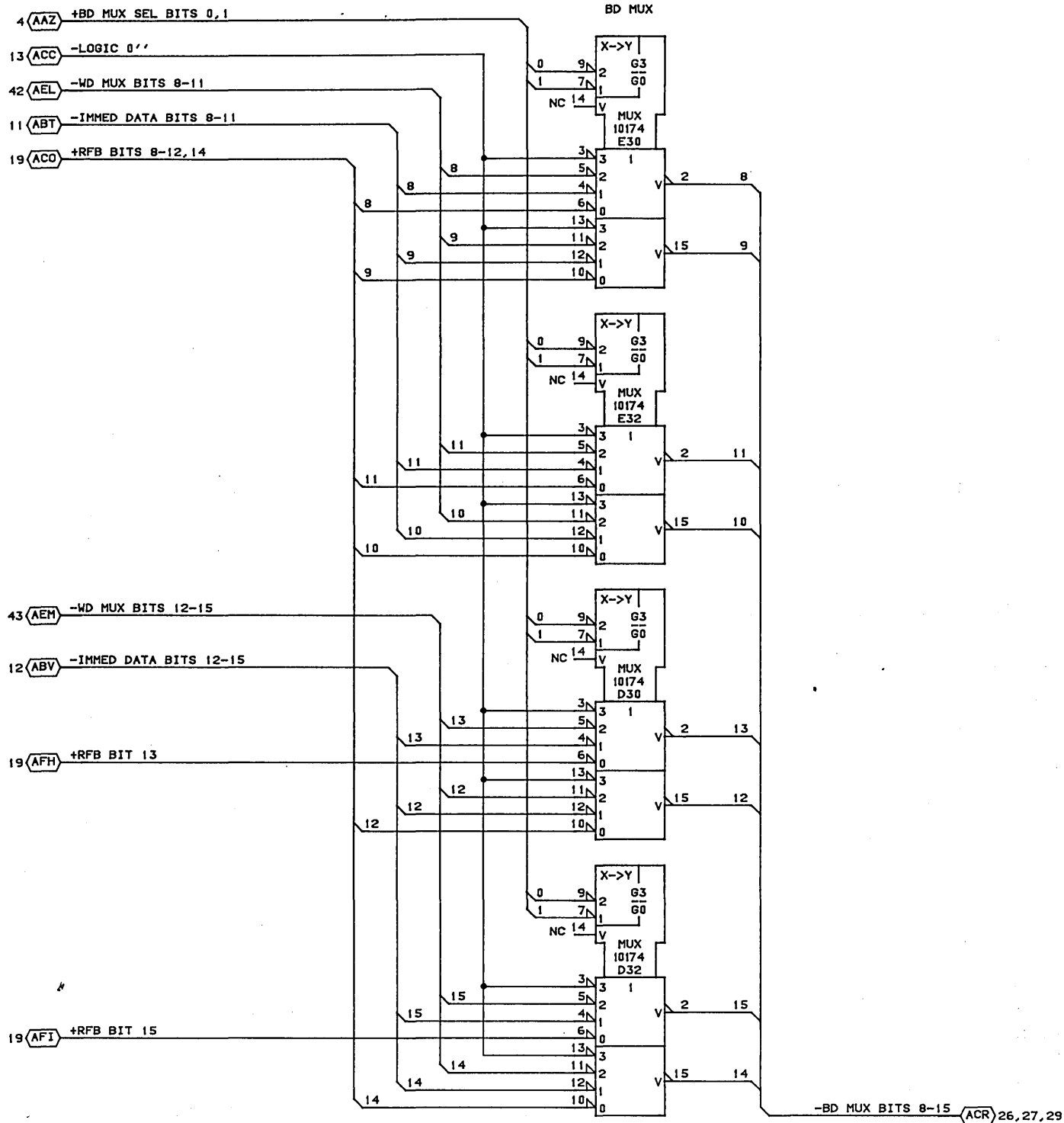
CONTROL  
DATA  
CANADA  
LTD

RFB BITS 8-15  
MODULE ASSY:210 PAK  
TYPE 11DF0

	C		A
23-APR-85	SHEET 19		







CONTROL  
DATA  
CANADA  
LTD

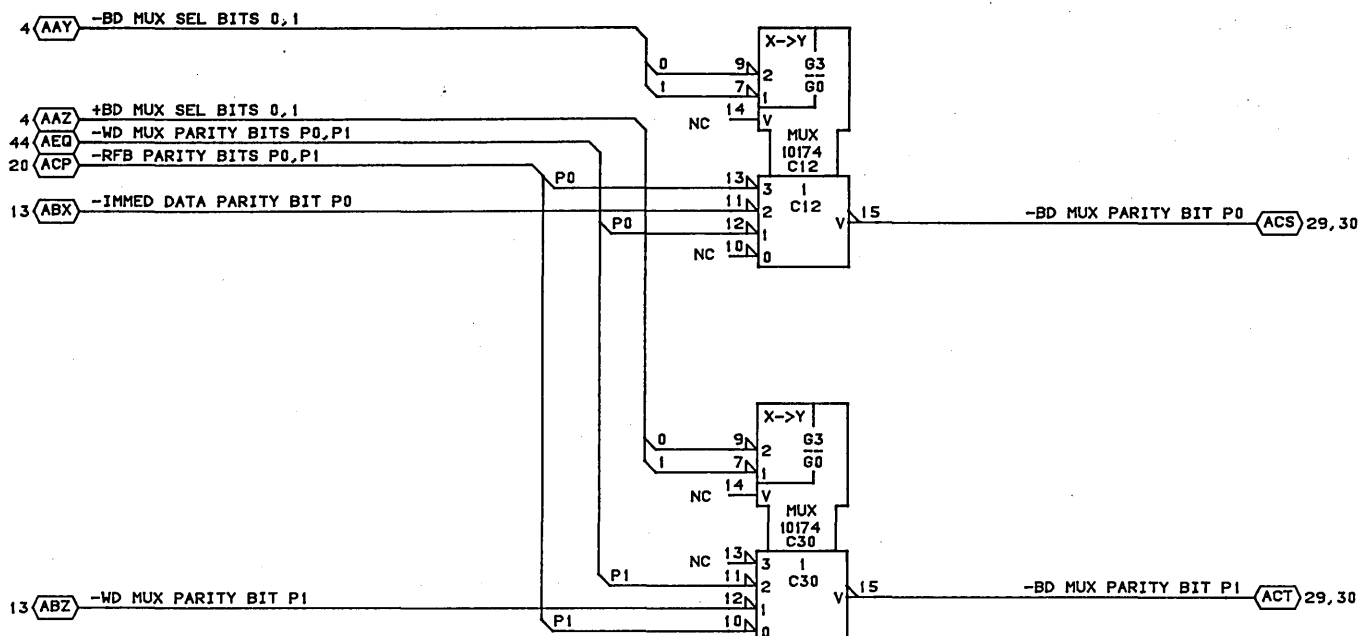
BD MUX BITS 8-15  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

23-APR-85

SHEET 22

C

A



CONTROL  
DATA  
CANADA  
LTD

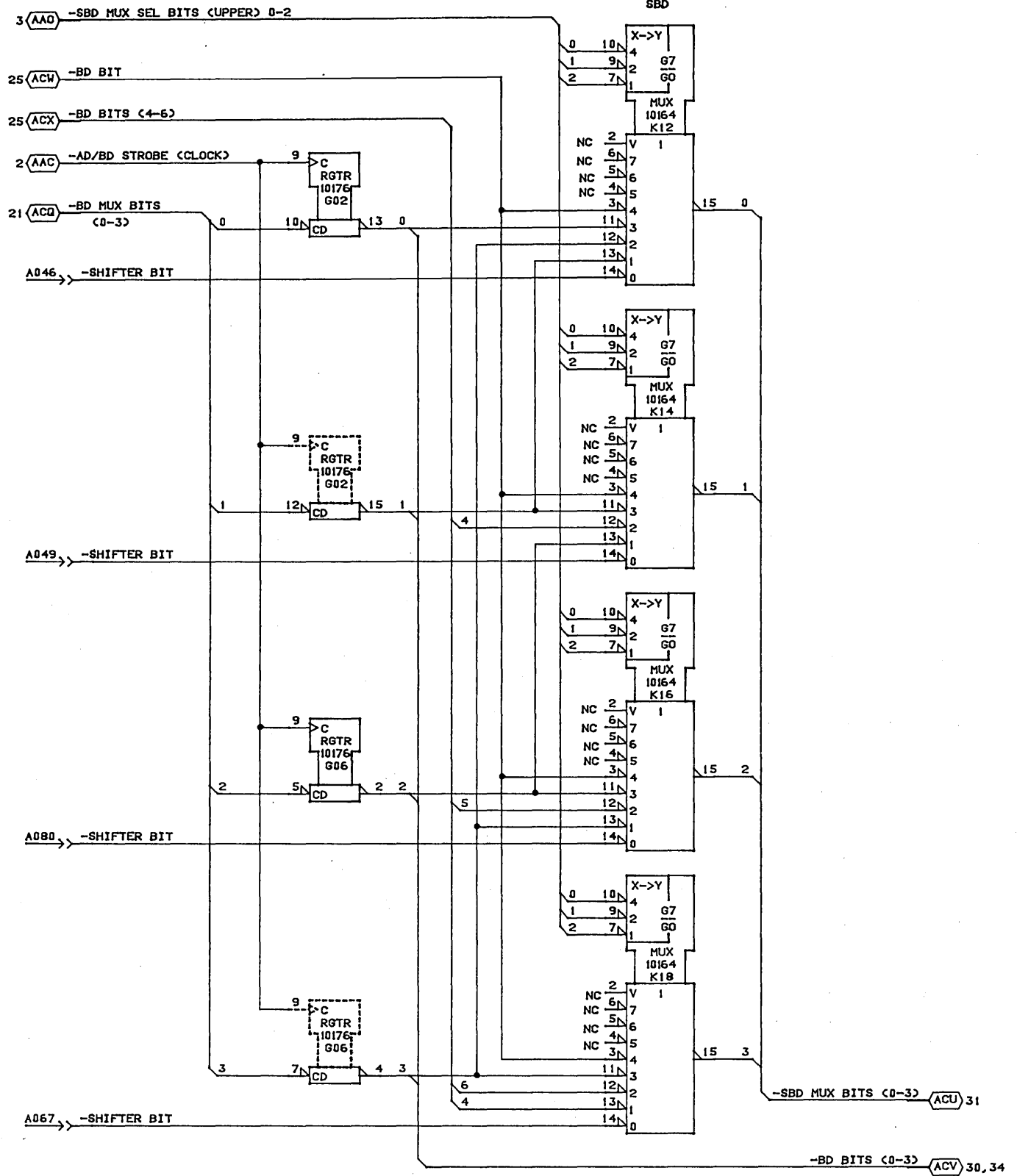
BD MUX PARITY P0,P1  
MODULE ASSY:210 PAK  
TYPE: 1DF0

C

A

24-APR-85

SHEET 23



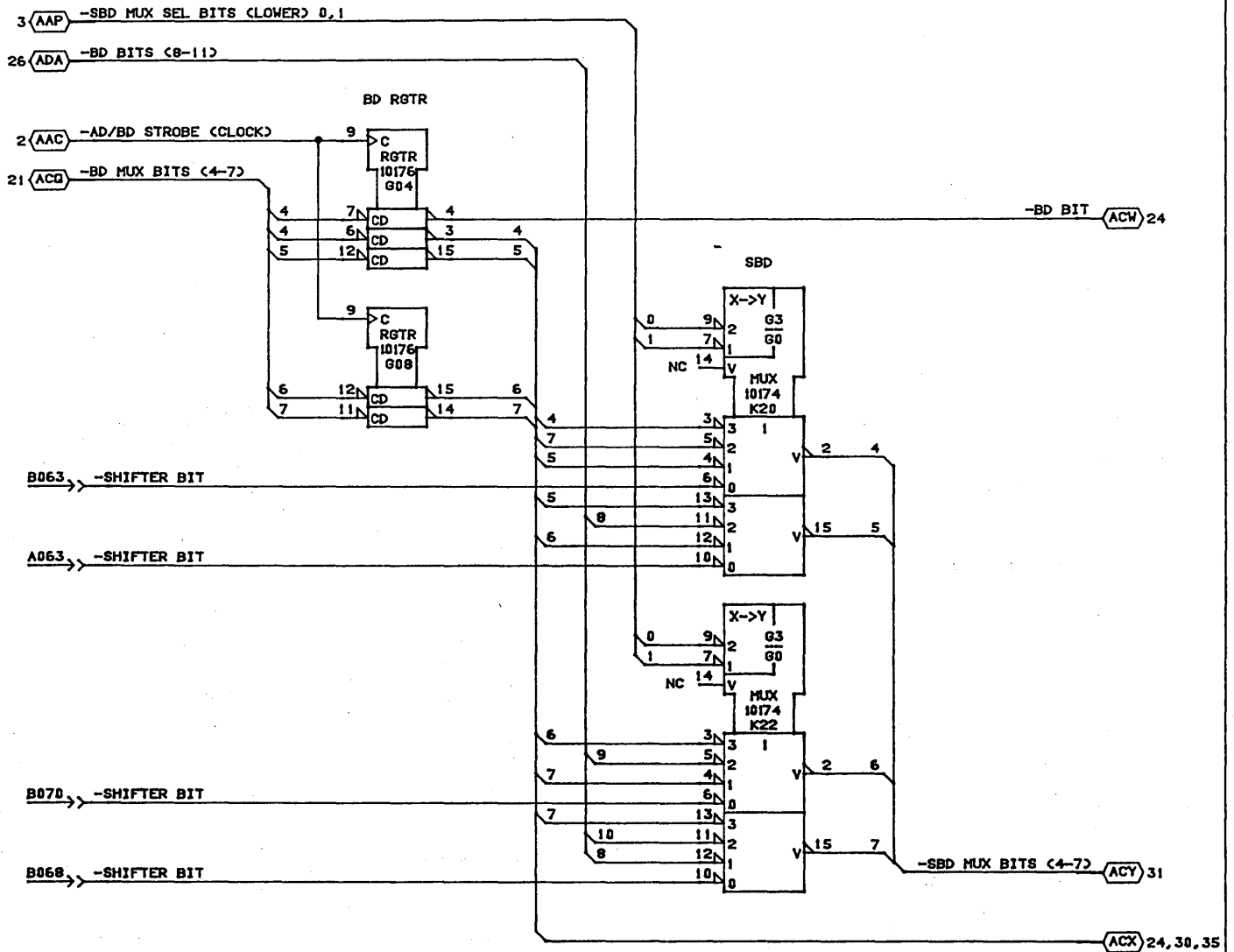
CONTROL  
DATA  
CANADA  
LTD

SBD MUX BITS 0-3  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

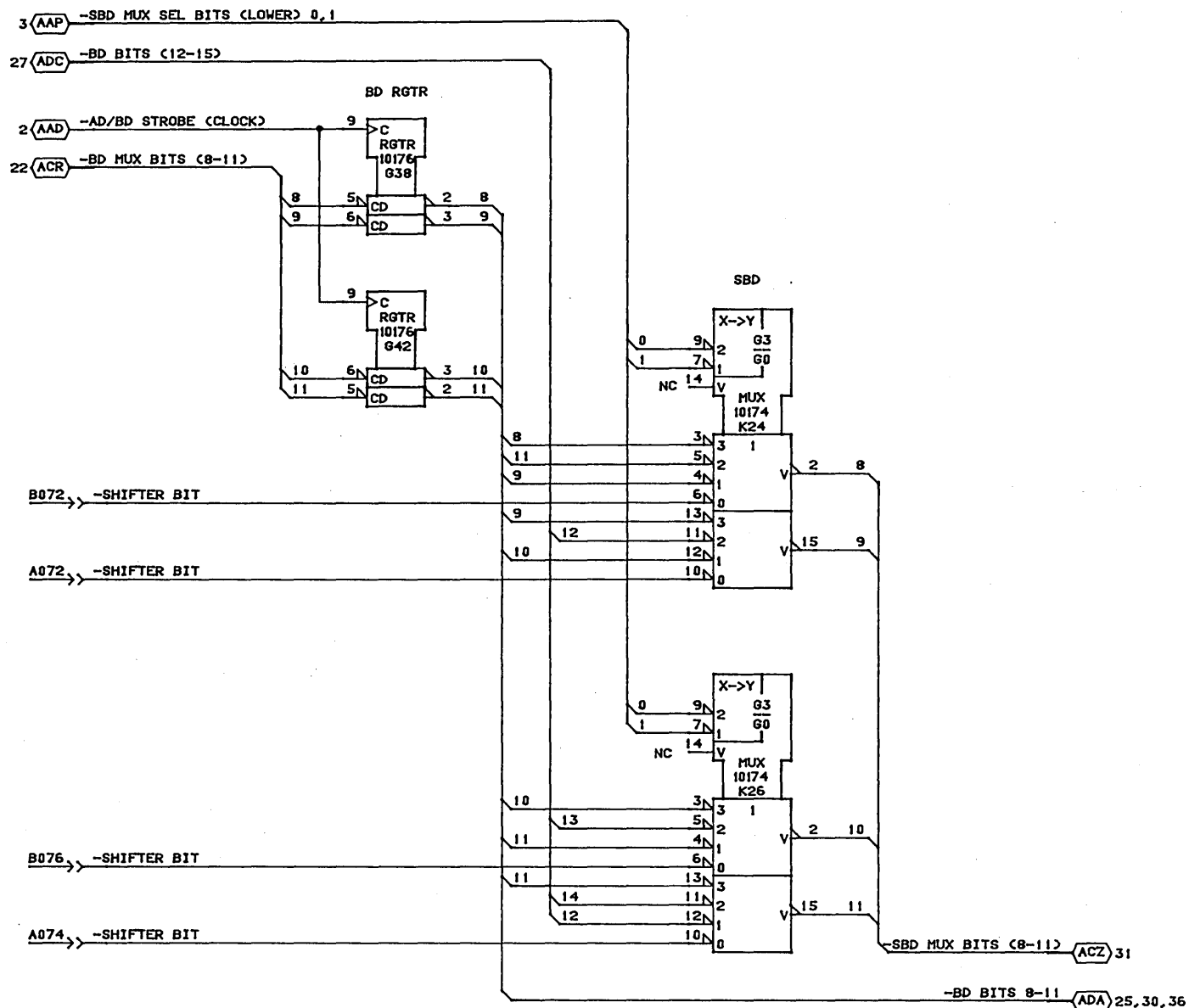
23-APR-85

SHEET 24

A



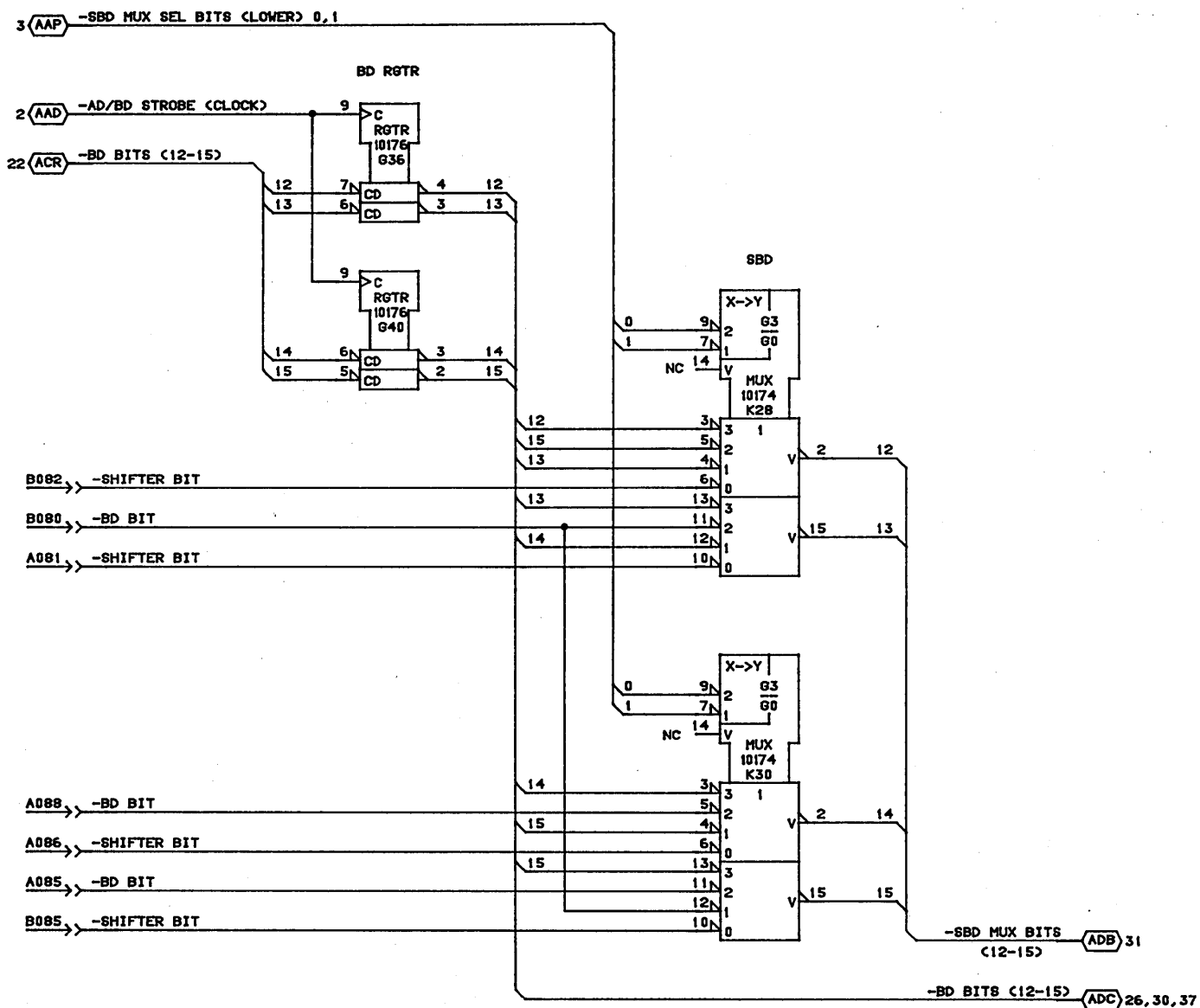




CONTROL  
DATA  
CANADA  
LTD

BD RGTR, SBD MUX BITS 8-11  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

	C		A
23-APR-85	SHEET 26		



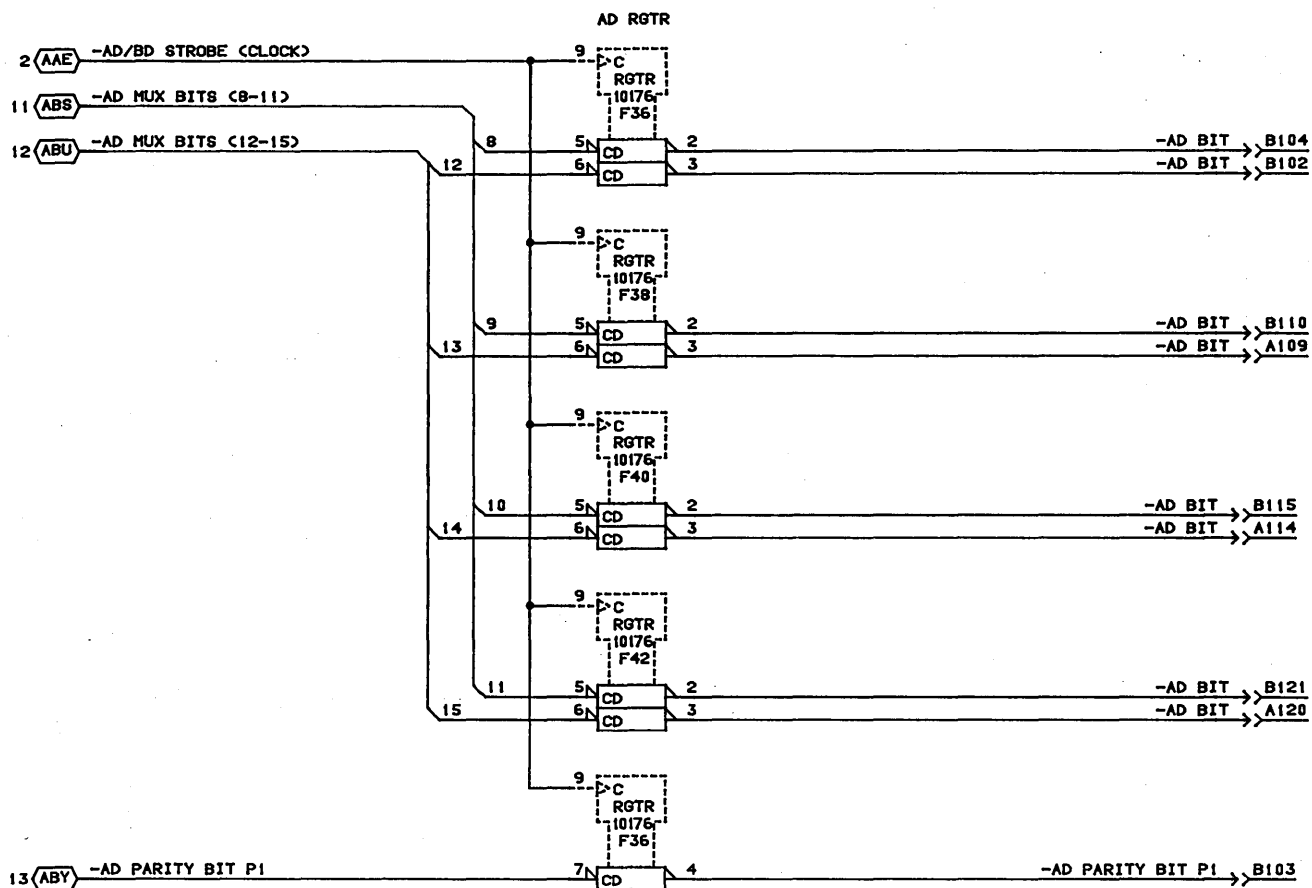
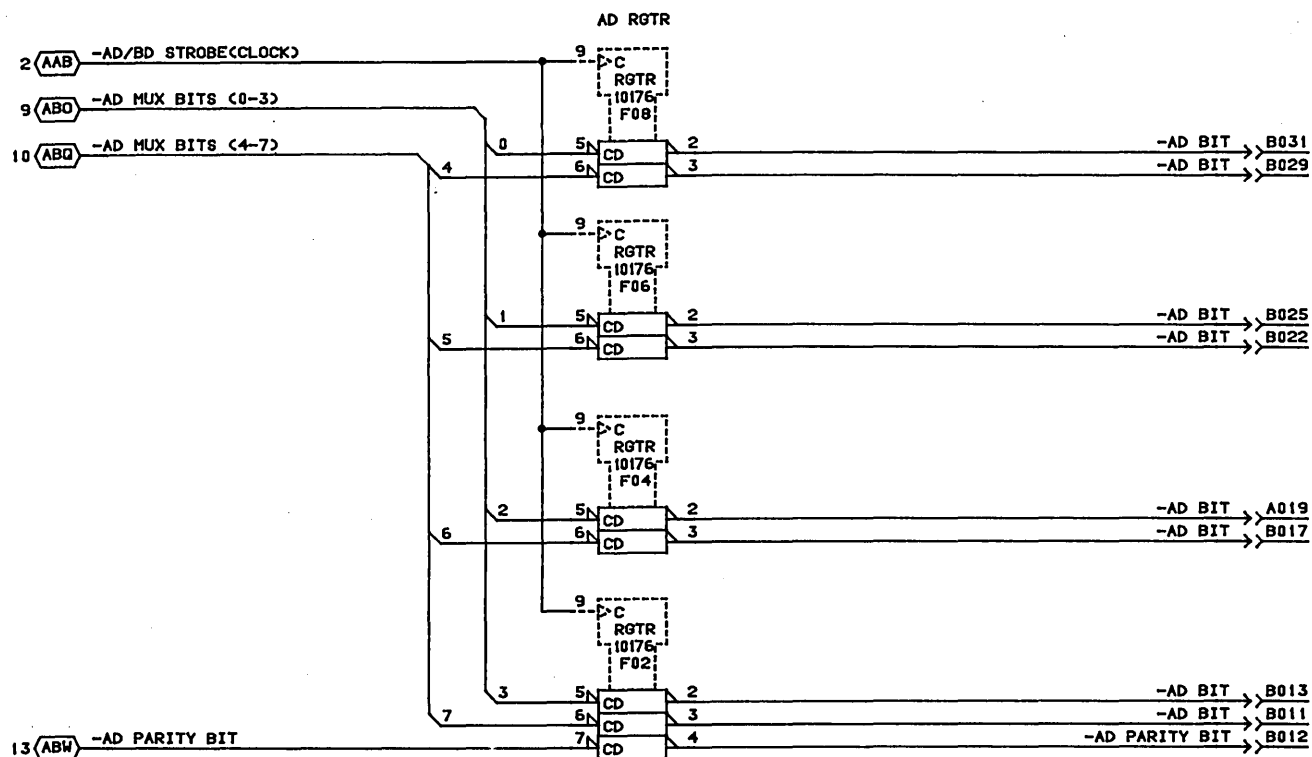
CONTROL  
DATA  
CANADA  
LTD

SBD MUX, BD RGTR BITS 12-15  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

23-APR-85

SHEET 27

A



CONTROL  
DATA  
CANADA  
LTD

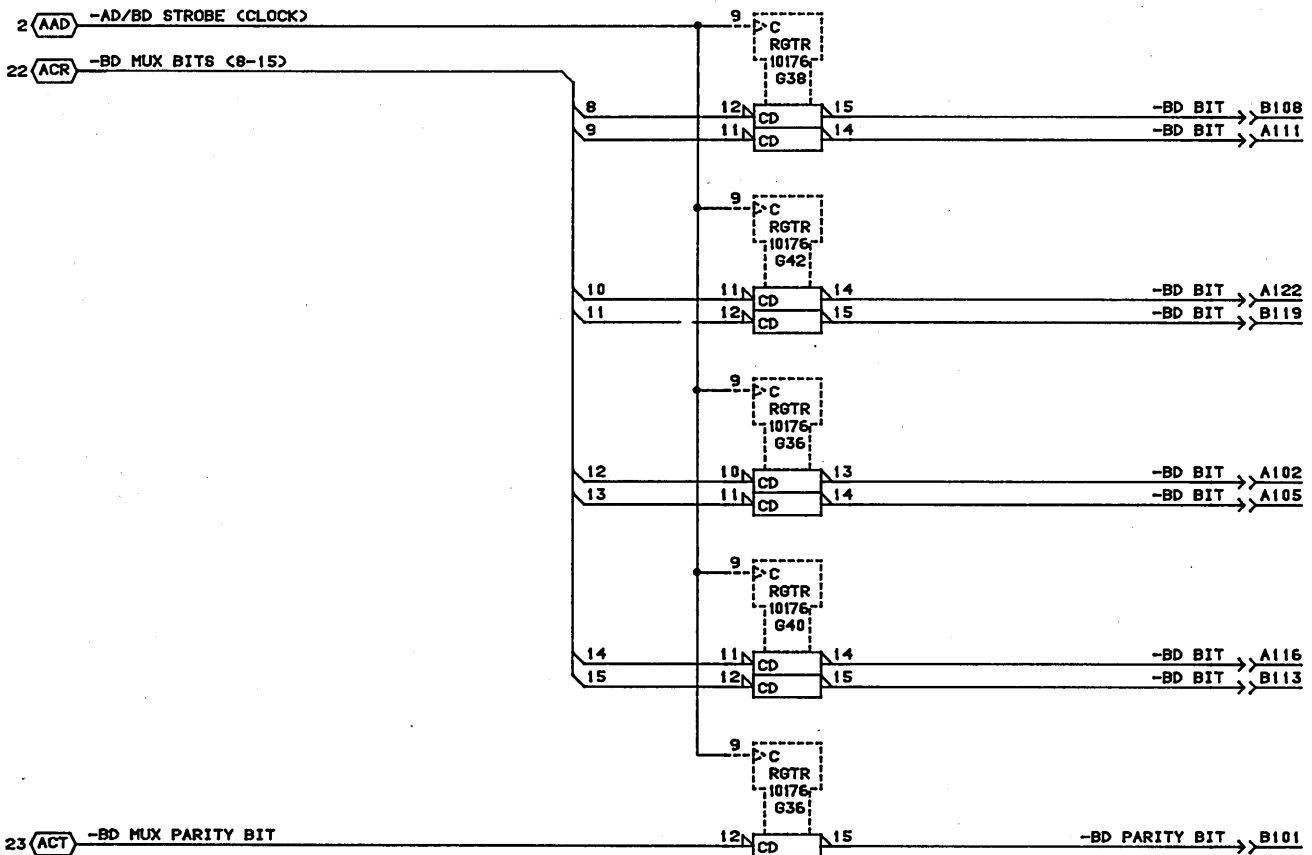
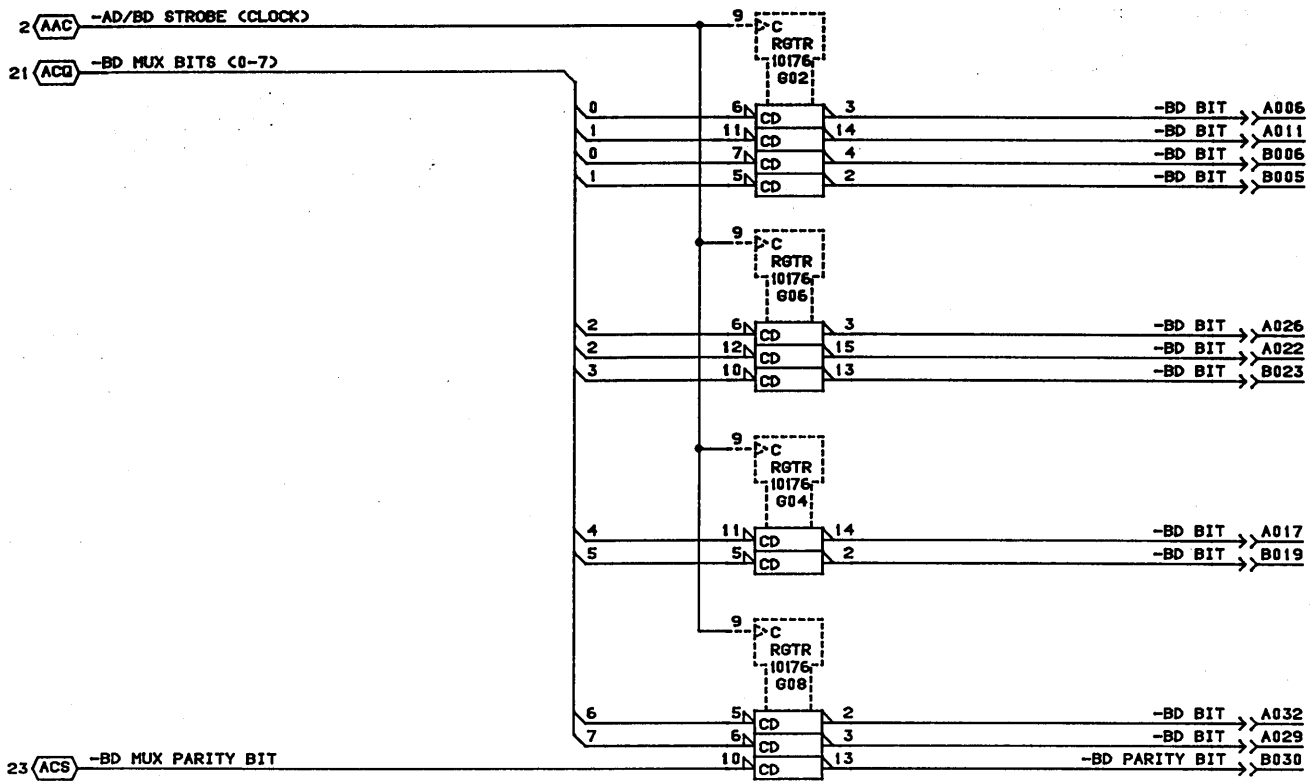
AD RGTR  
MODULE ASSY:210 PAK  
TYPE: 1DF0

24-APR-85

SHEET 28

A

# BD RGTR



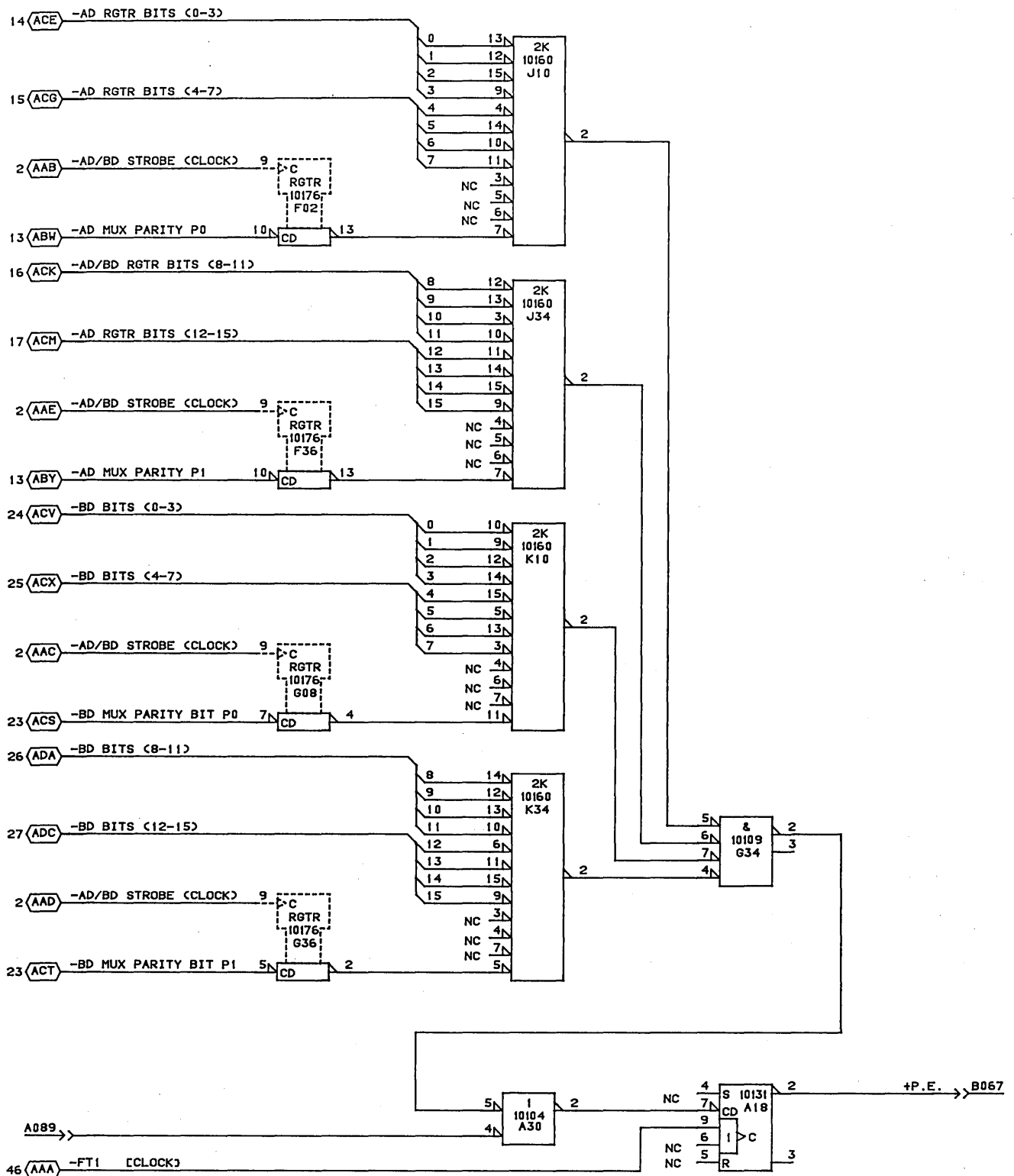
CONTROL  
DATA  
CANADA  
LTD

BD RGTR  
MODULE ASSY: 210 PAK  
TYPE: 10F0

24-APR-85

SHEET 29

A



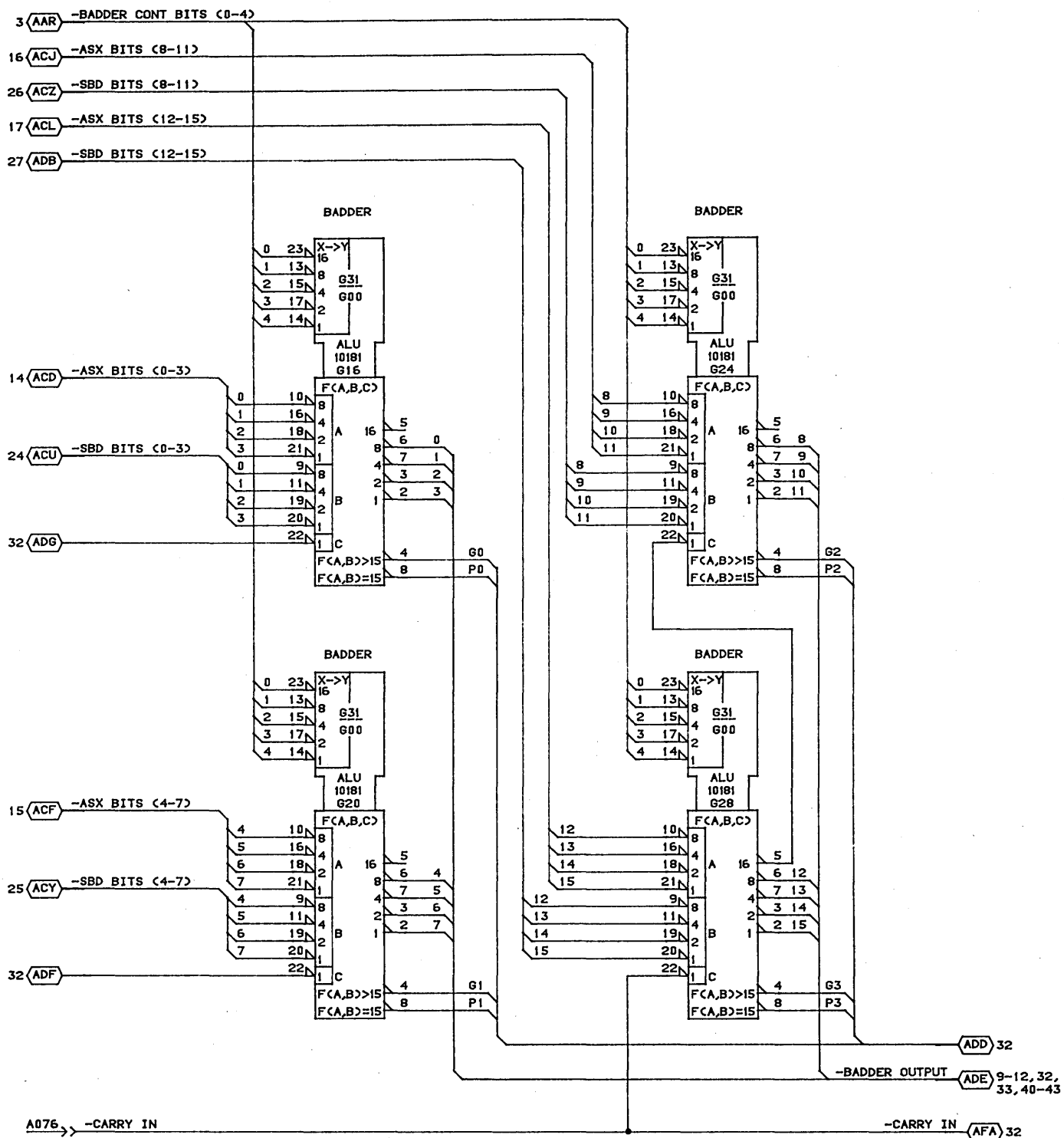
CONTROL  
DATA  
CANADA  
LTD

AD, BD PARITY CHECKERS  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

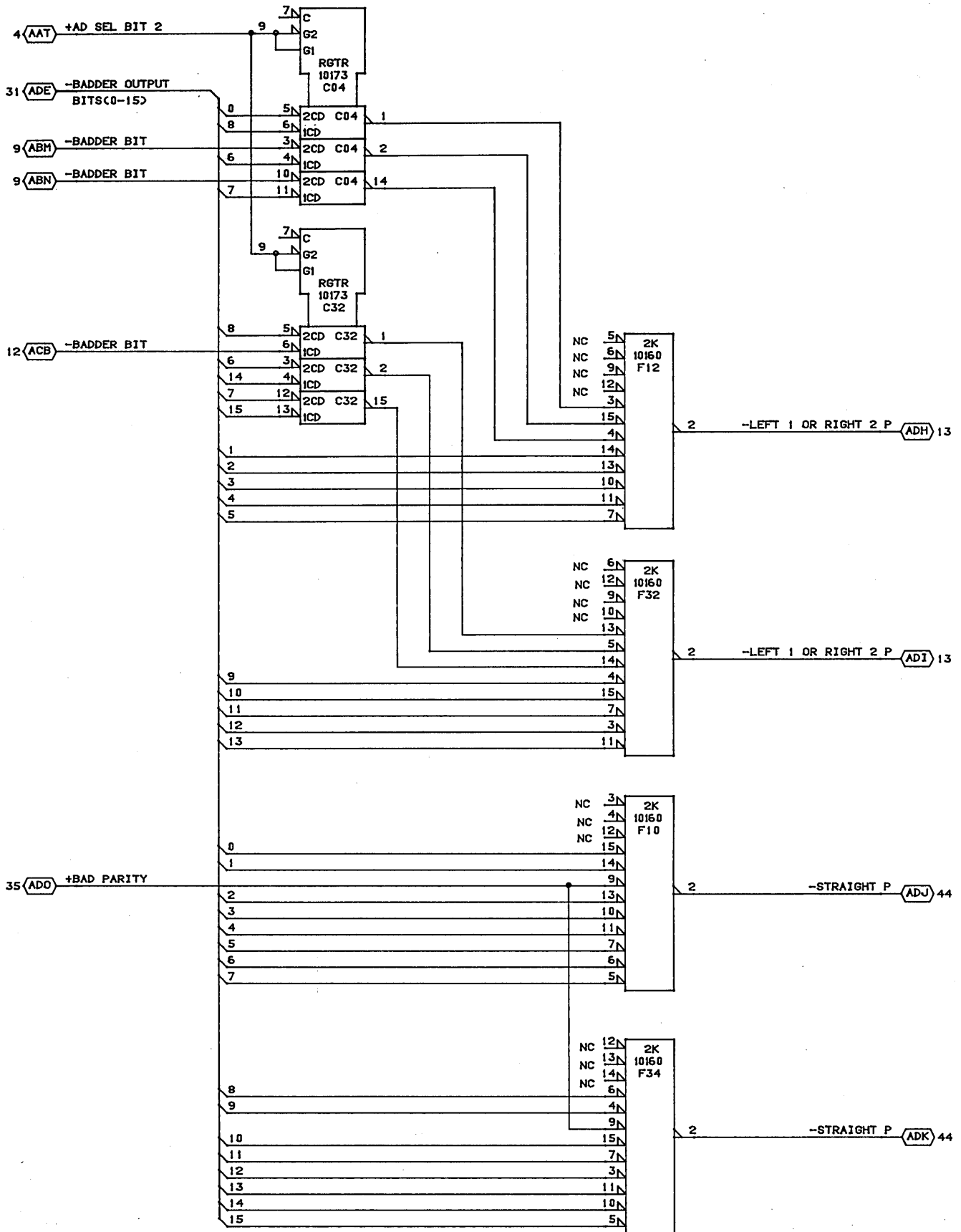
25-APR-85

SHEET 30

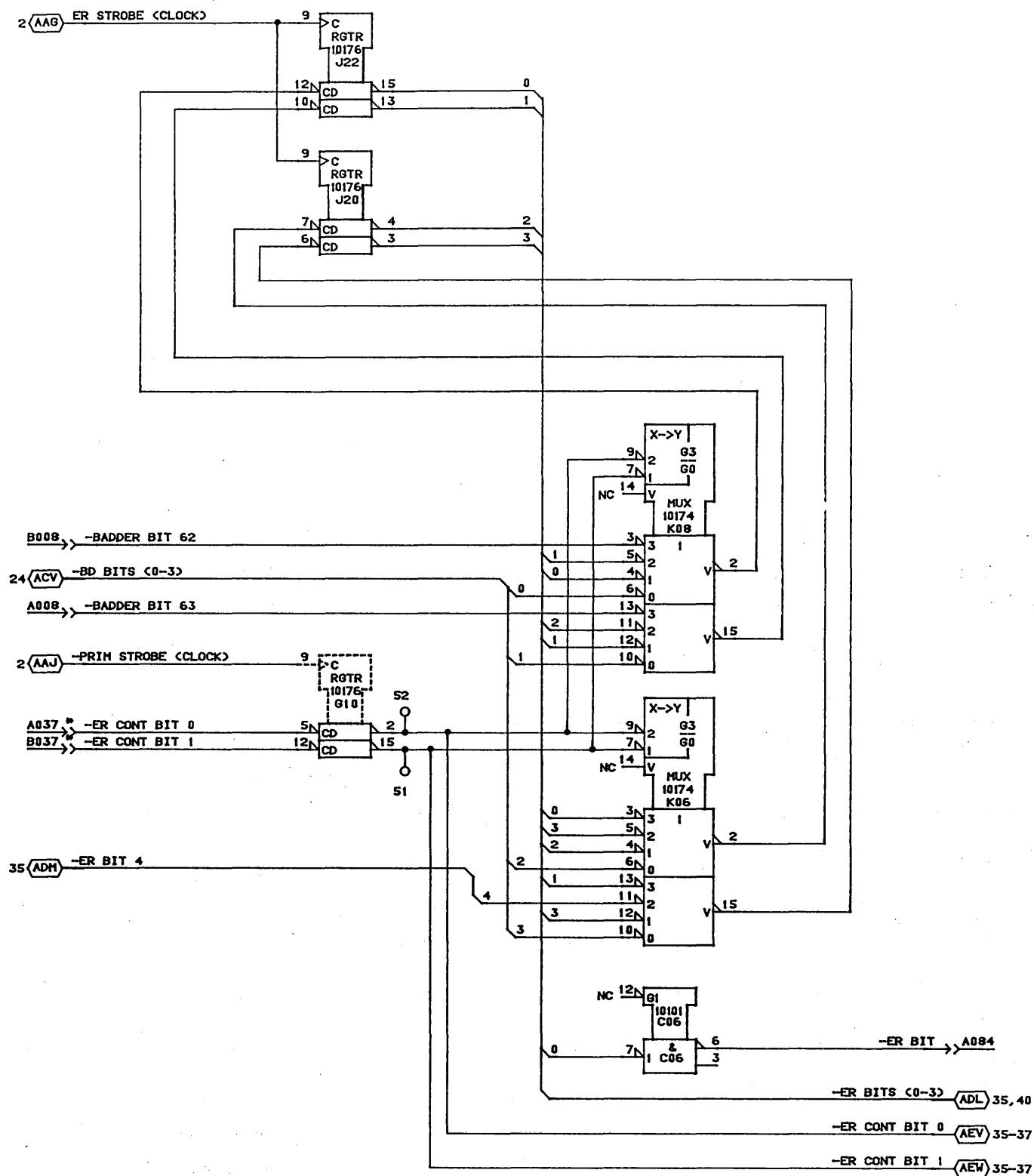
A











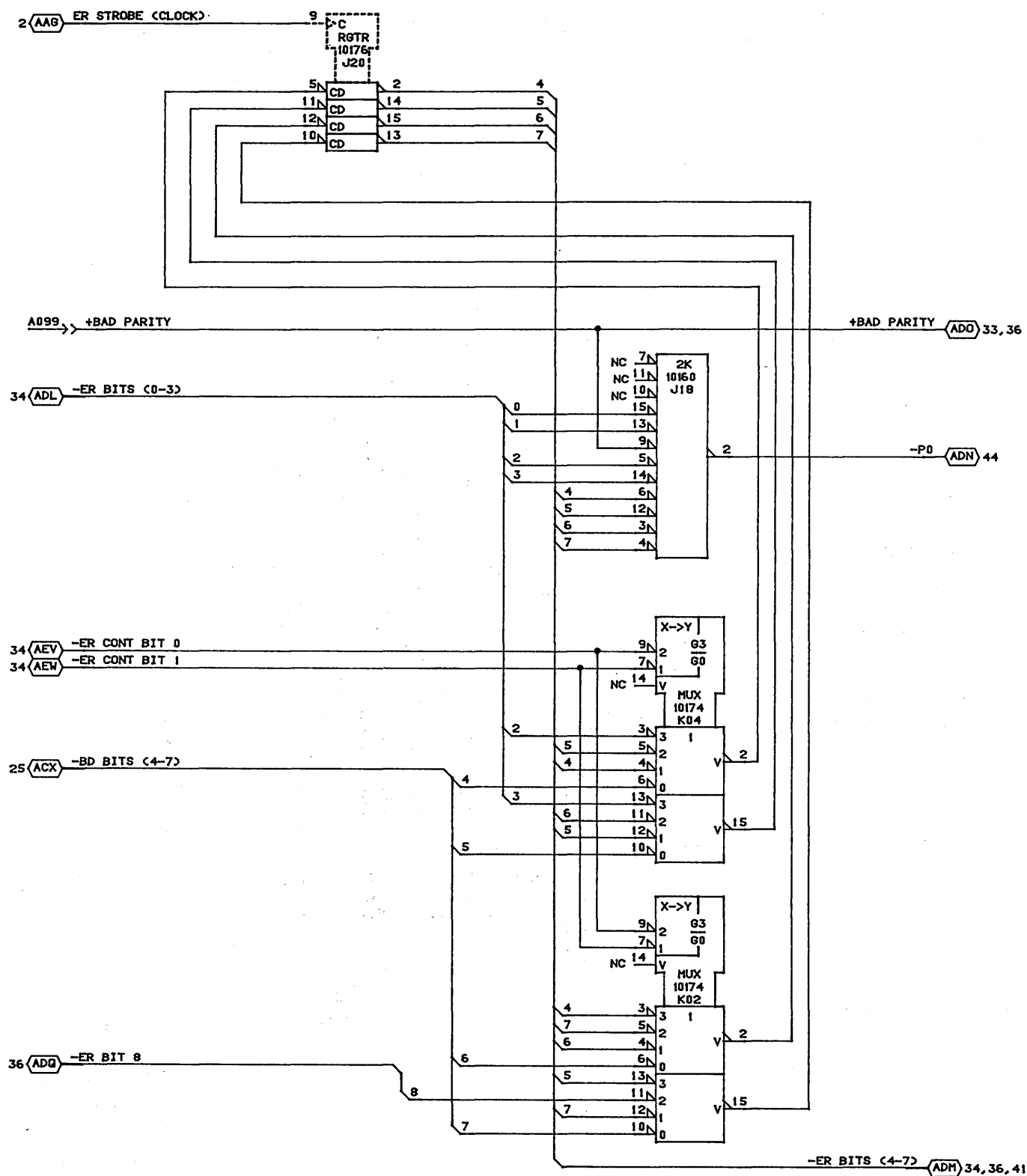
CONTROL  
DATA  
CANADA  
LTD

ER MUX, ER RGTR BITS 0-3  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

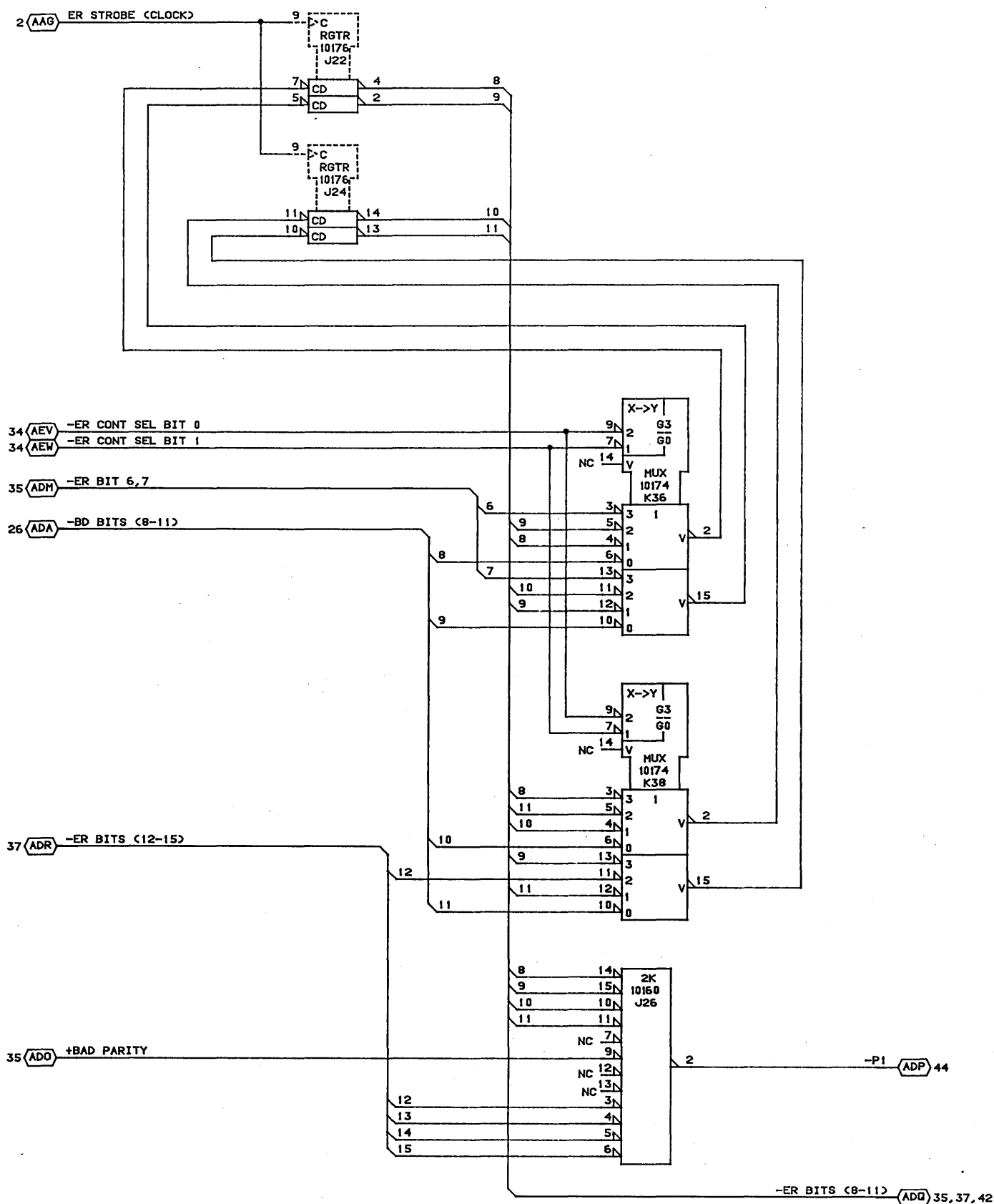
24-APR-85

SHEET 34

A



CONTROL DATA CANADA LTD	ER MUX,ER RGTR BITS 4-7 MODULE ASSY:210 PAK TYPE: 1DF0		C		A
		24-APR-85	SHEET 35		

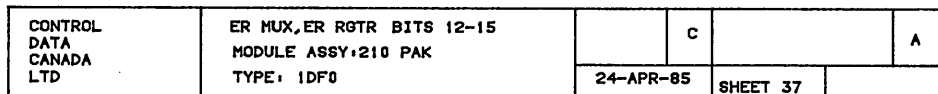


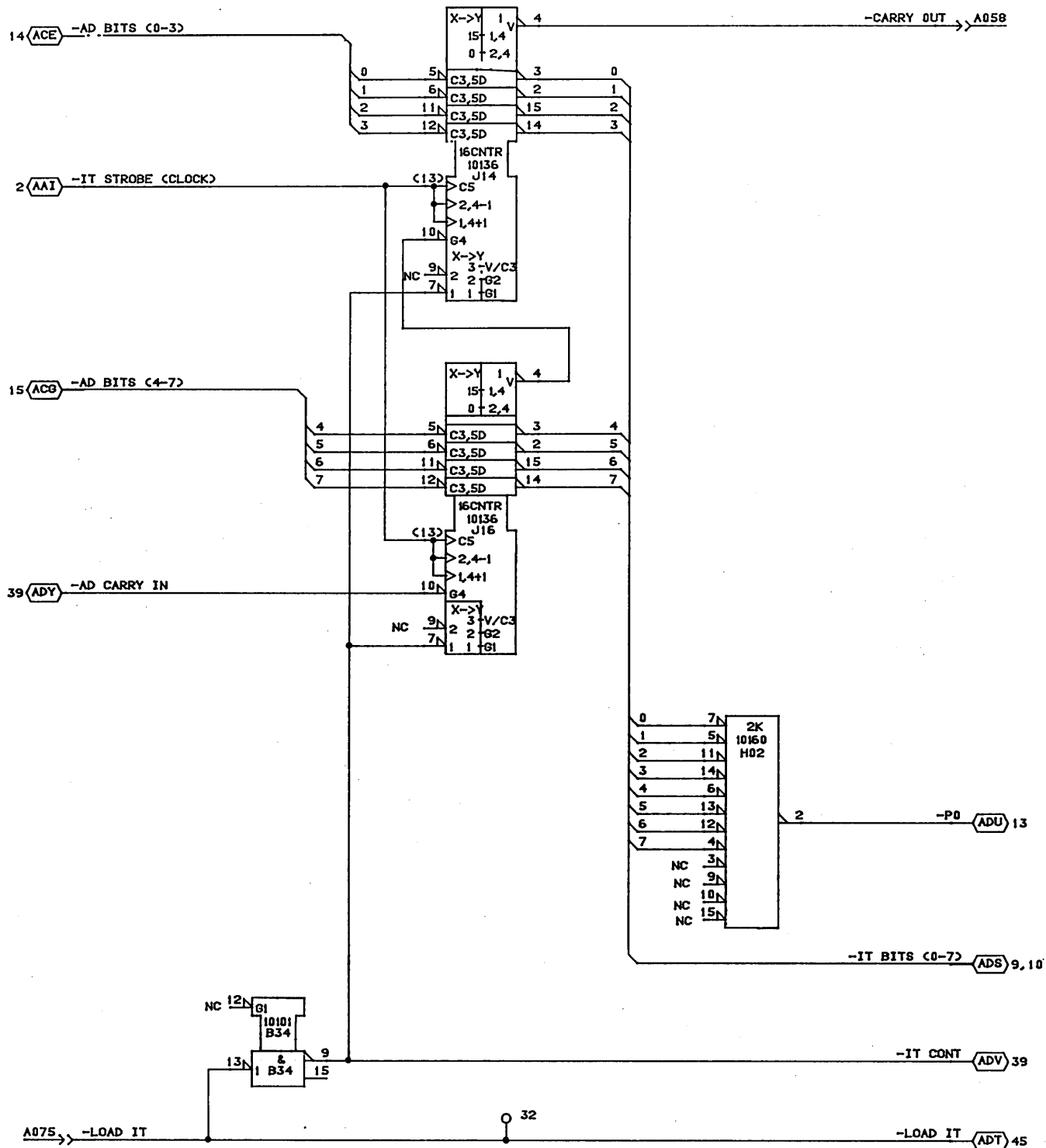
CONTROL  
DATA  
CANADA  
LTD

ER MUX, ER RGTR BITS 8-11  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

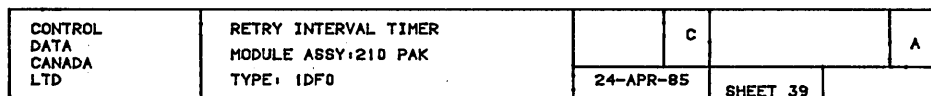
C

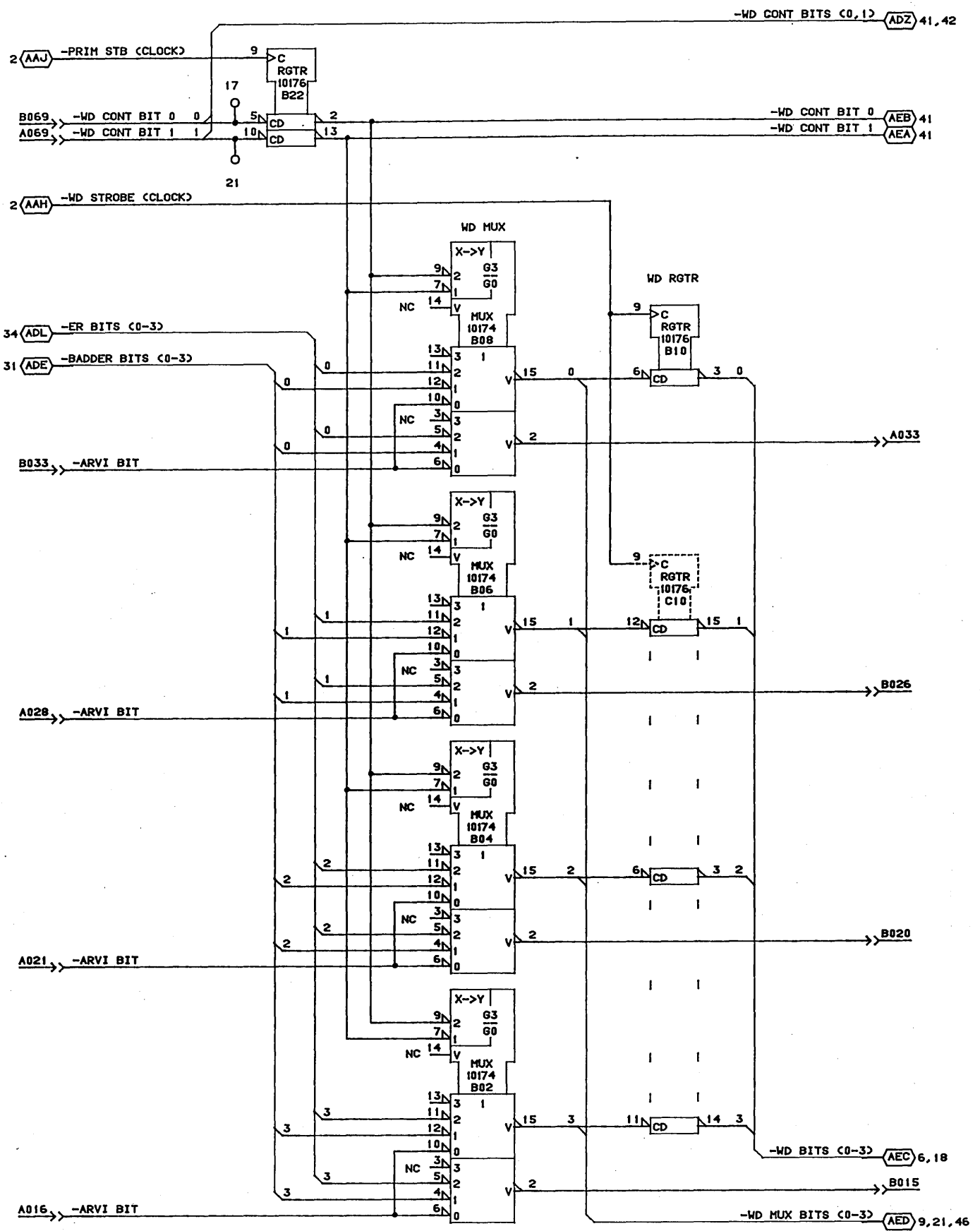
A

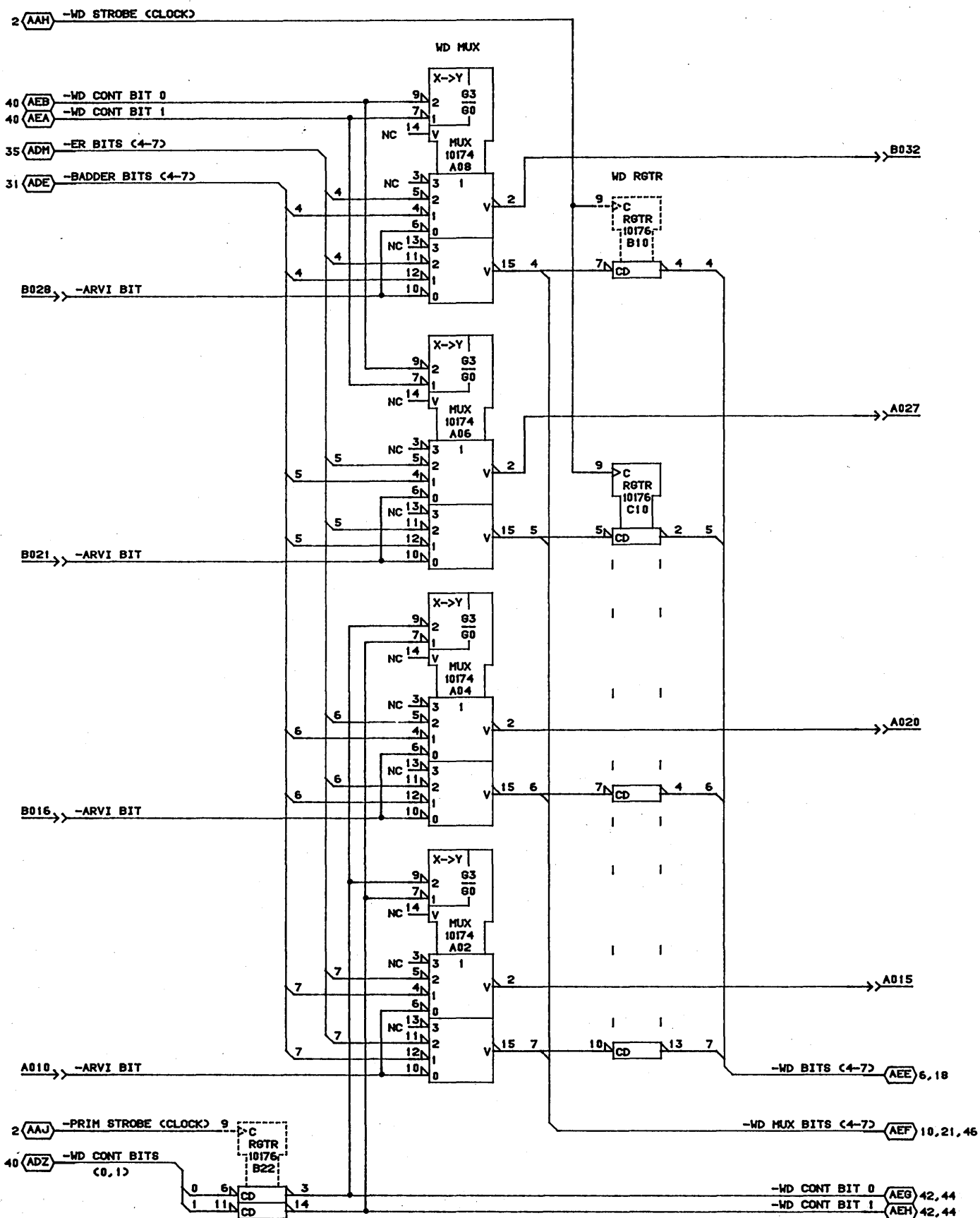




CONTROL DATA CANADA LTD	RETRY INTERVAL TIMER MODULE ASSY:210 PAK TYPE: 1DF0		C		A
		24-APR-85		SHEET 38	







CONTROL  
DATA  
CANADA  
LTD

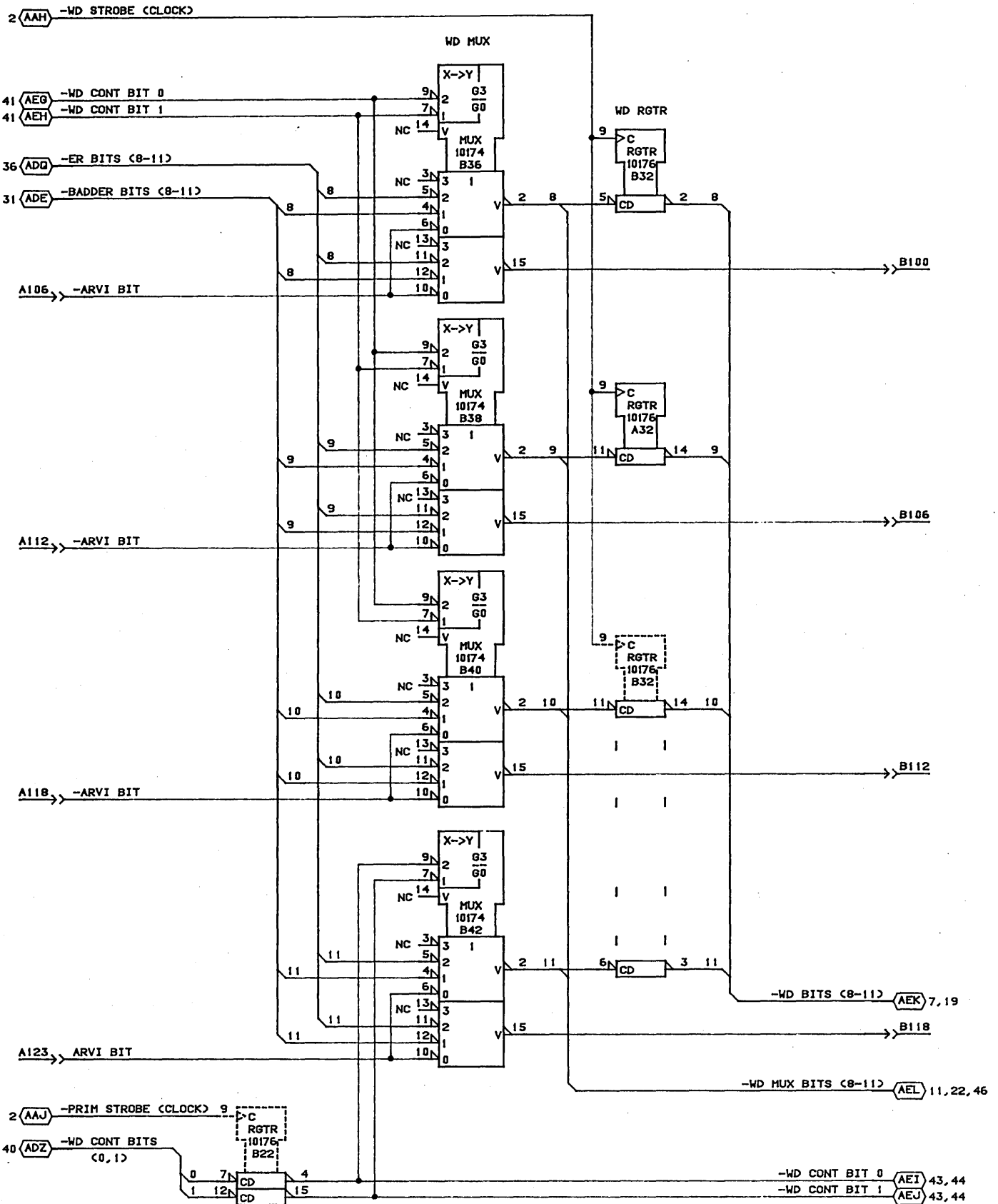
WD MUX, WD R6TR BITS 4-7  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

24-APR-85

SHEET 41

A





CONTROL  
DATA  
CANADA  
LTD

WD MUX, WD RGTR BITS 8-11  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

24-APR-85

SHEET 42

A

2(AAH) -WD STROBE (CLOCK)

WD MUX

42(AE1) -WD CONT BIT 0

42(AEJ) -WD CONT BIT 1

37(ADR) -ER BITS (12-15)

31(ADE) -BADDR BITS (12-15)

B105 -> -ARVI BIT

B111 -> -ARVI BIT

B116 -> -ARVI BIT

B122 -> -ARVI BIT

WD RGTR

9 -> C  
RGTR  
10176  
A32

9 -> C  
RGTR  
10176  
B32

10 -> CD

7 -> CD

-WD BITS (12-15) (AEN) 7, 19

-WD MUX BITS (12-15) (AEM) 12, 22, 46

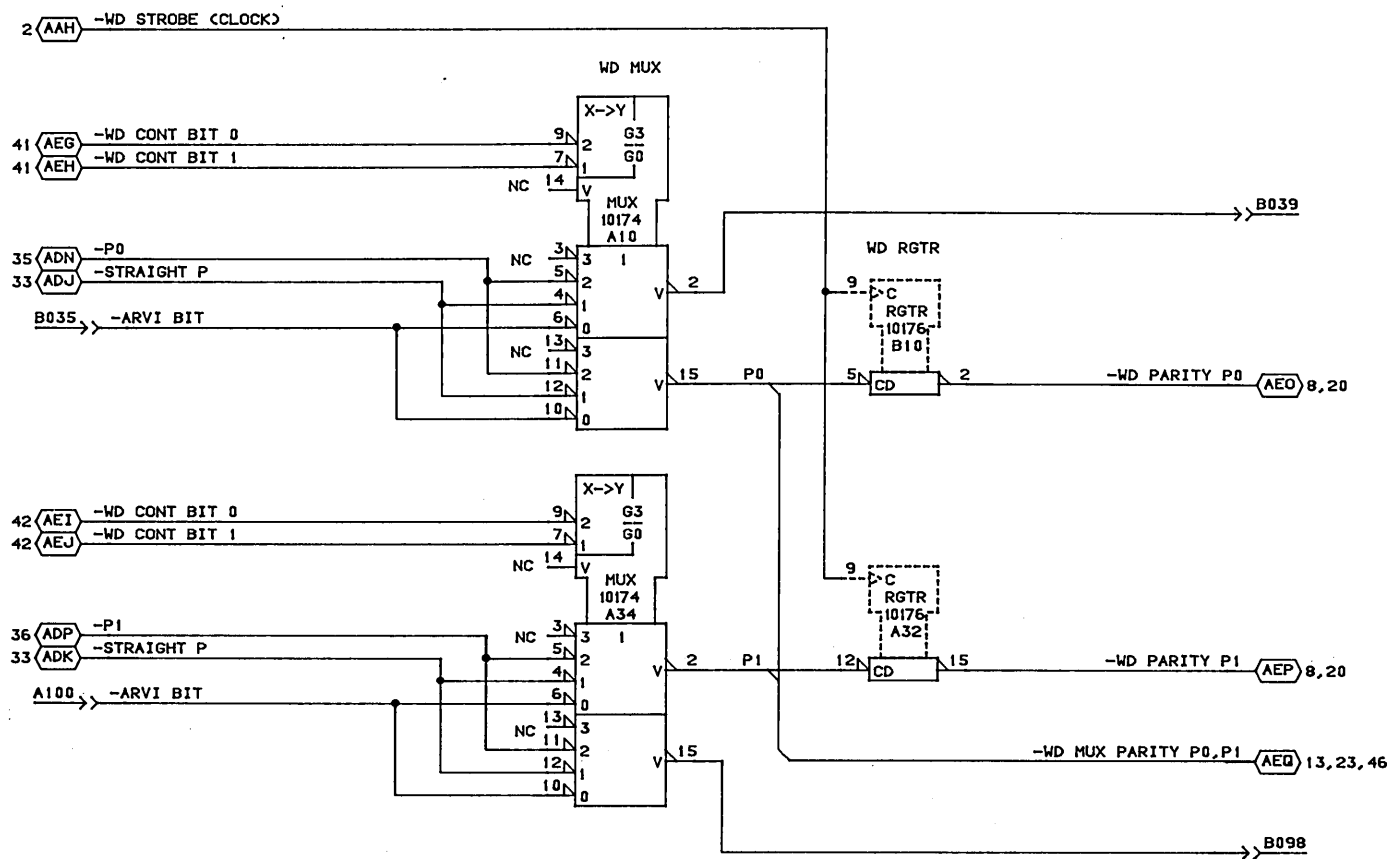
CONTROL  
DATA  
CANADA  
LTD

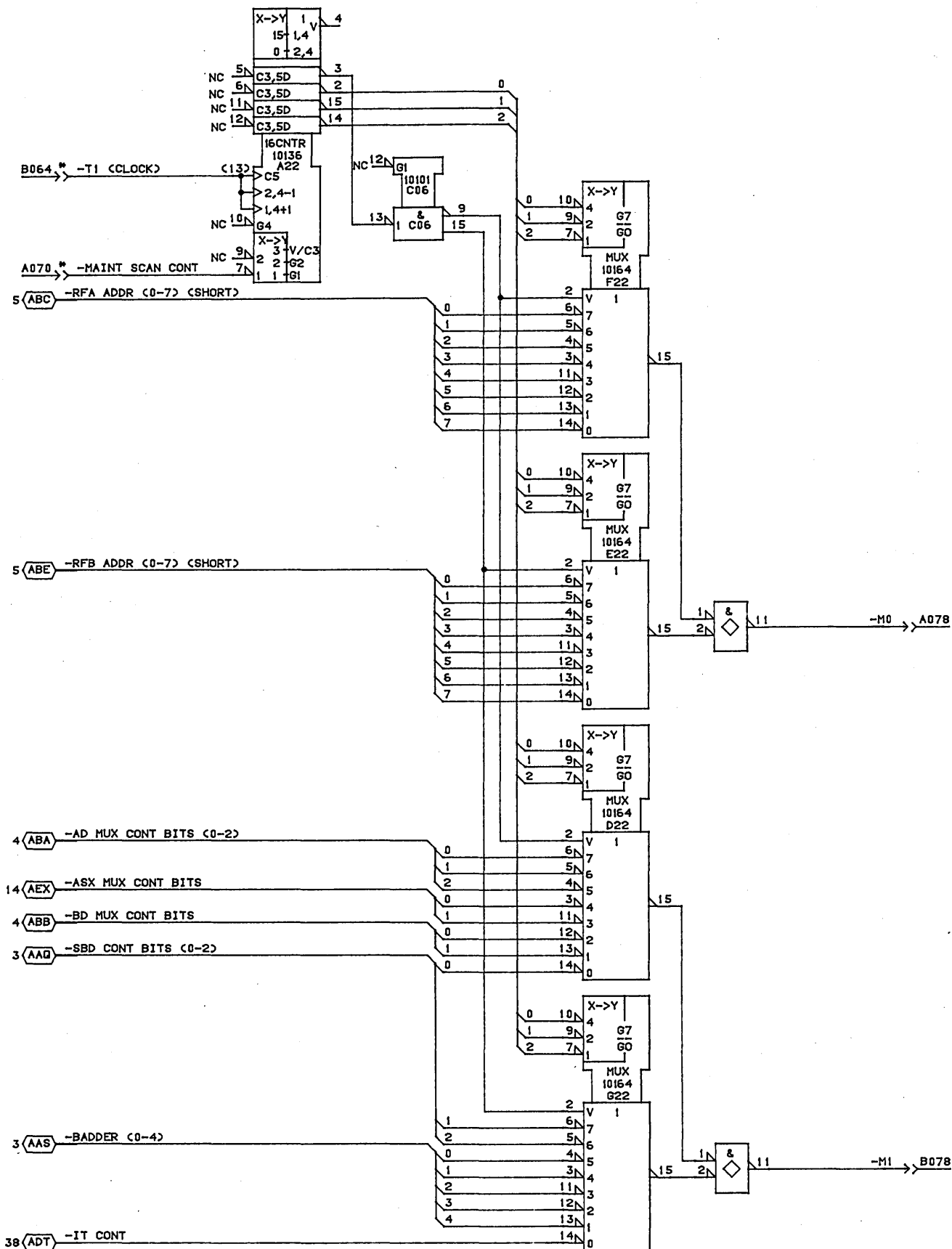
WD MUX, WD RGTR BITS 12-15  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

24-APR-85

SHEET 43

A





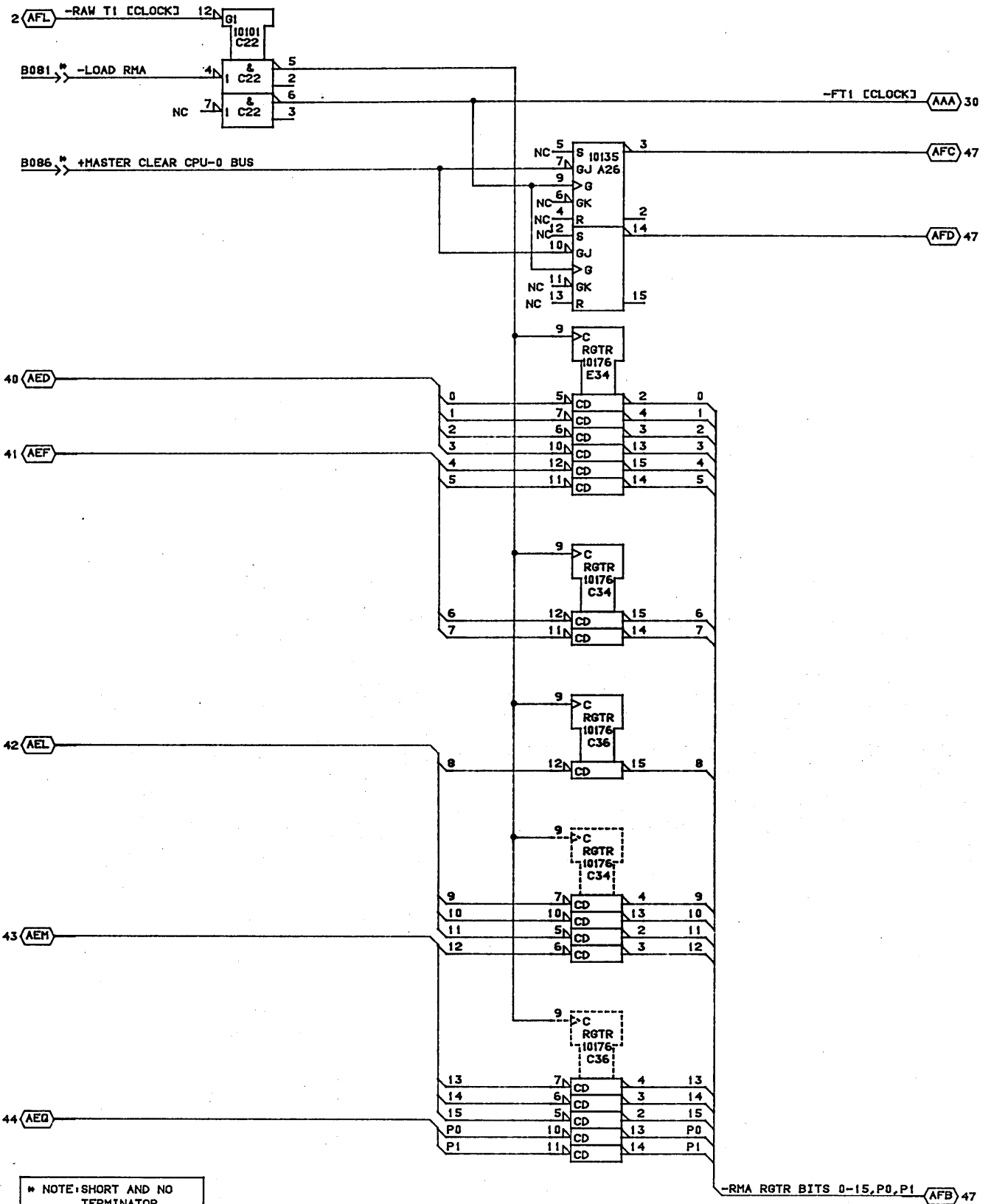
CONTROL  
DATA  
CANADA  
LTD

MAINT SCAN  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

24-APR-85

SHEET 45

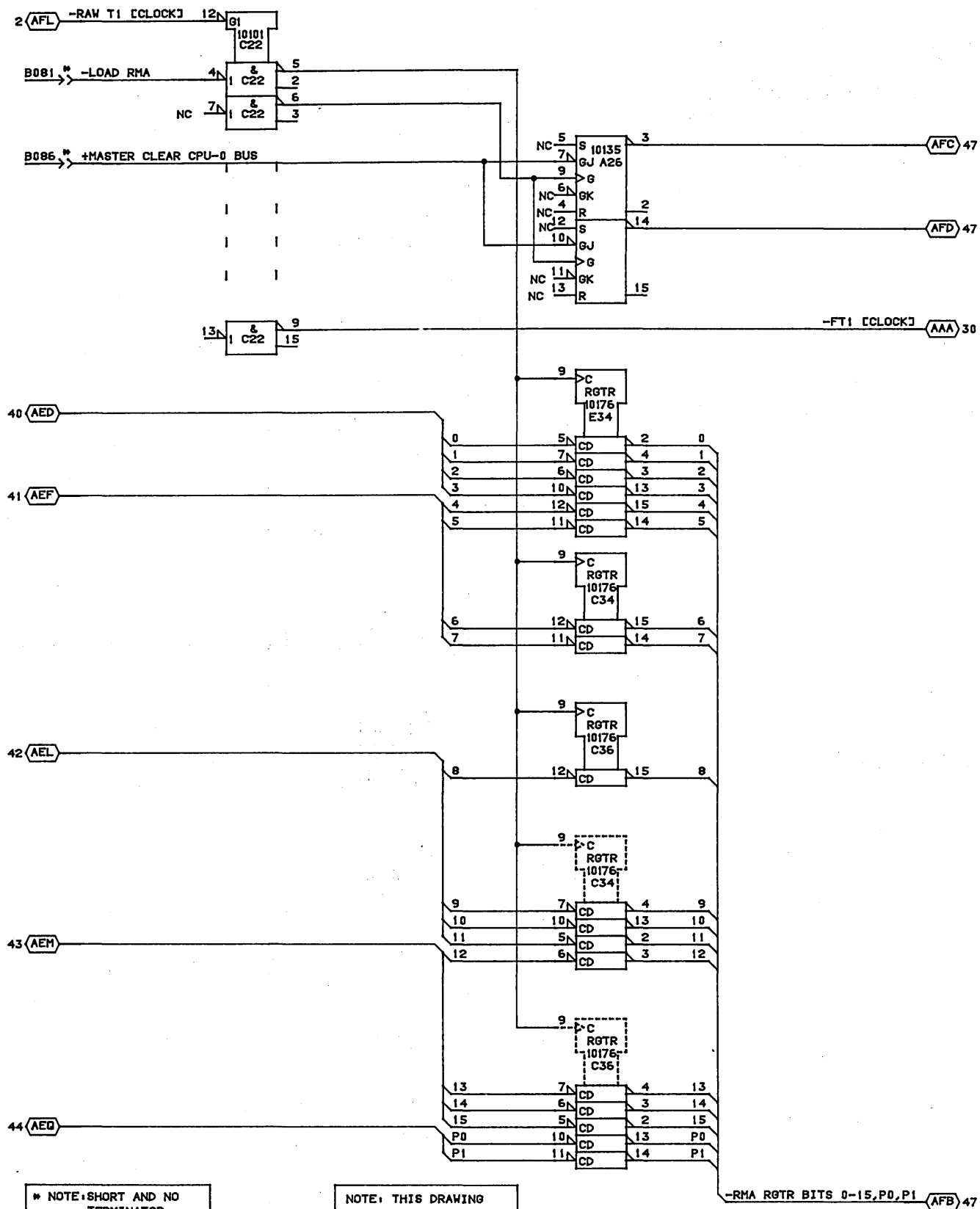
A



CONTROL  
DATA  
CANADA  
LTD

RMA REGISTER  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

C	A
24-APR-85	SHEET 46



\* NOTE: SHORT AND NO TERMINATOR.

NOTE: THIS DRAWING IS APPLICABLE TO PWB 19267980 ONLY.

CONTROL  
DATA  
CANADA  
LTD

RMA REGISTER  
MODULE ASSY: 210 PAK  
TYPE: 1DF0

29-APR-85

SHEET 46A

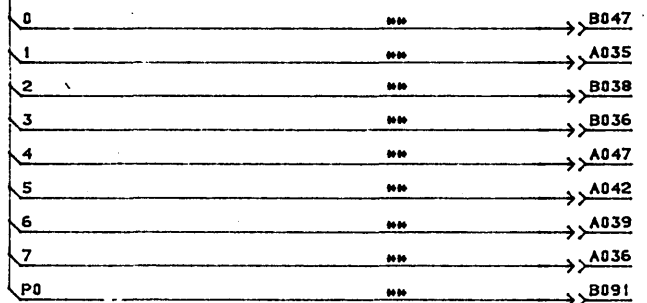
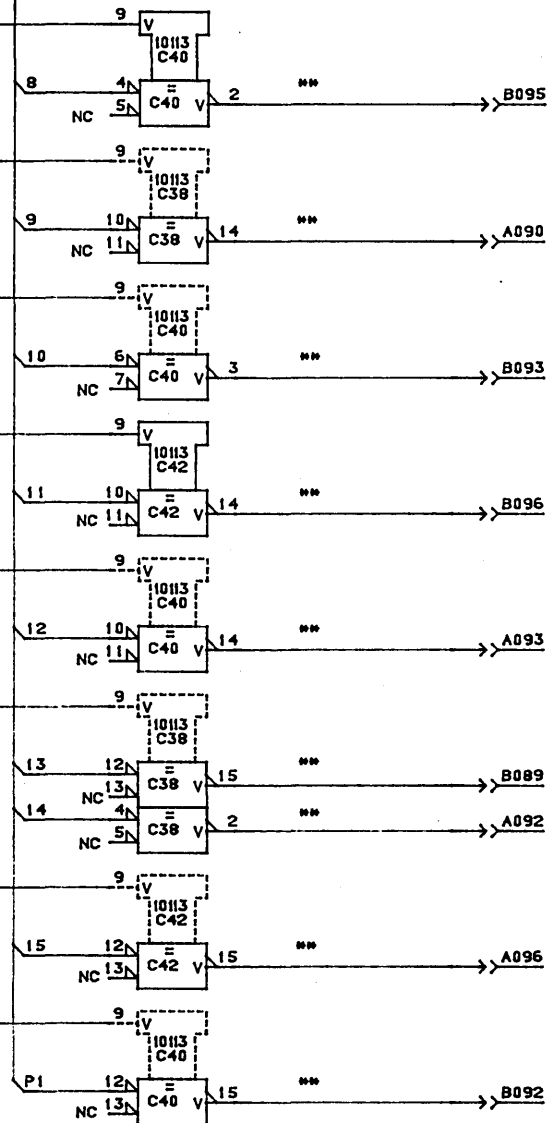
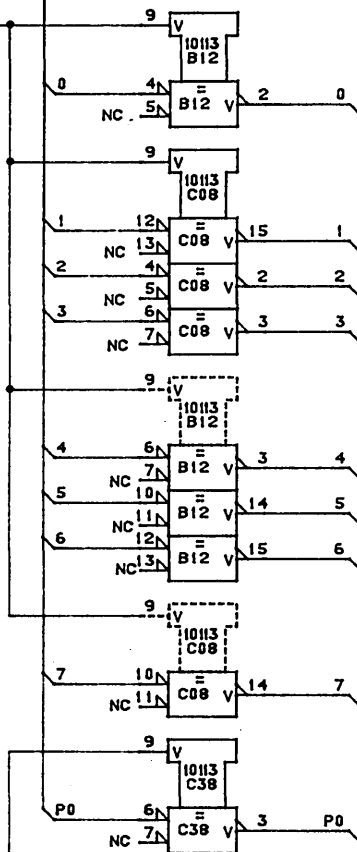
C

C

46 (AFB) -RMA RGTR BITS 0-15,P0,P1

46 (AFC)

46 (AFD)



\*\* SHORT

CONTROL  
DATA  
CANADA  
LTD

RMA DRIVERS  
MODULE ASSY:210 PAK  
TYPE: 1DF0

C

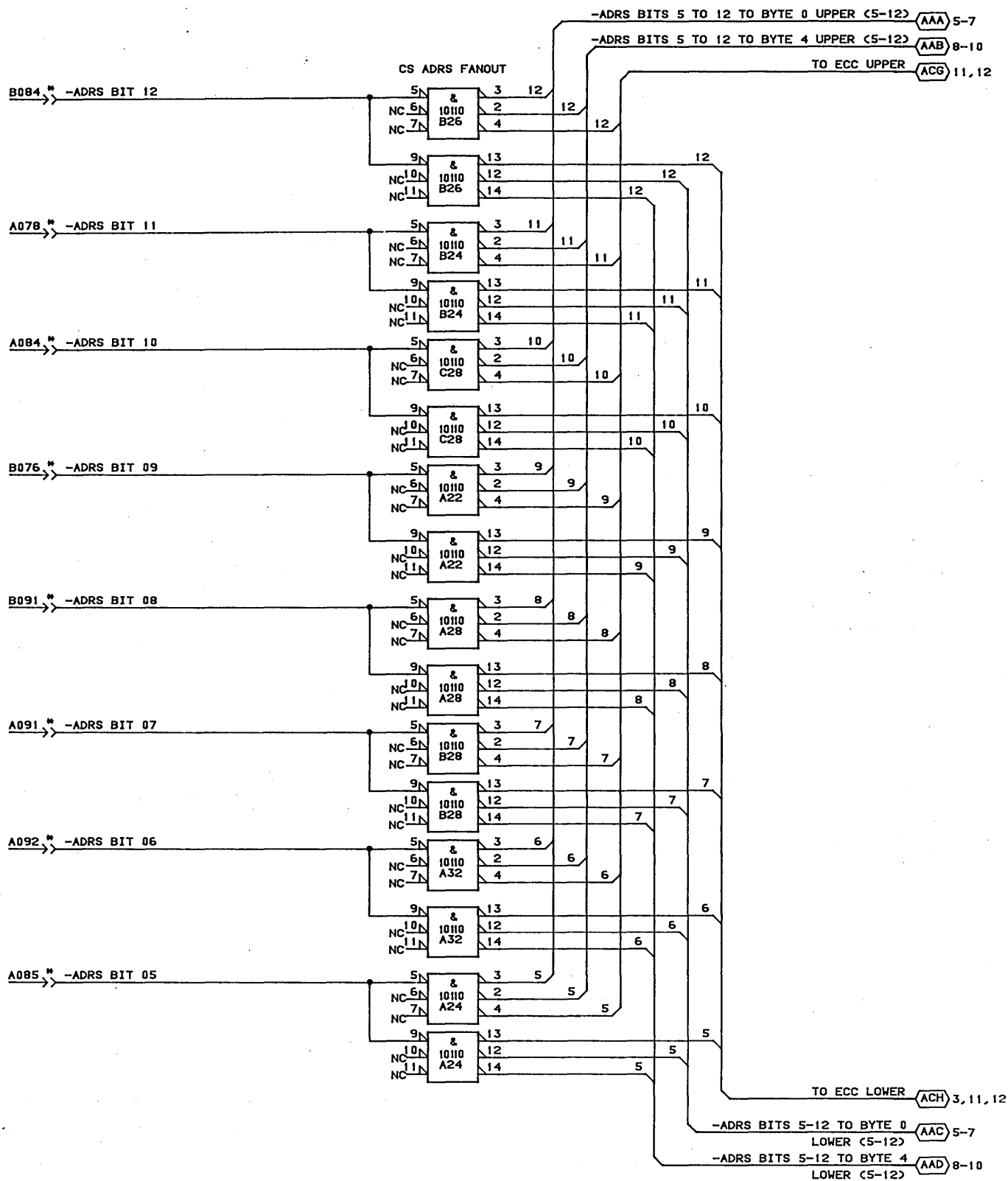
A

24-APR-85

SHEET 47



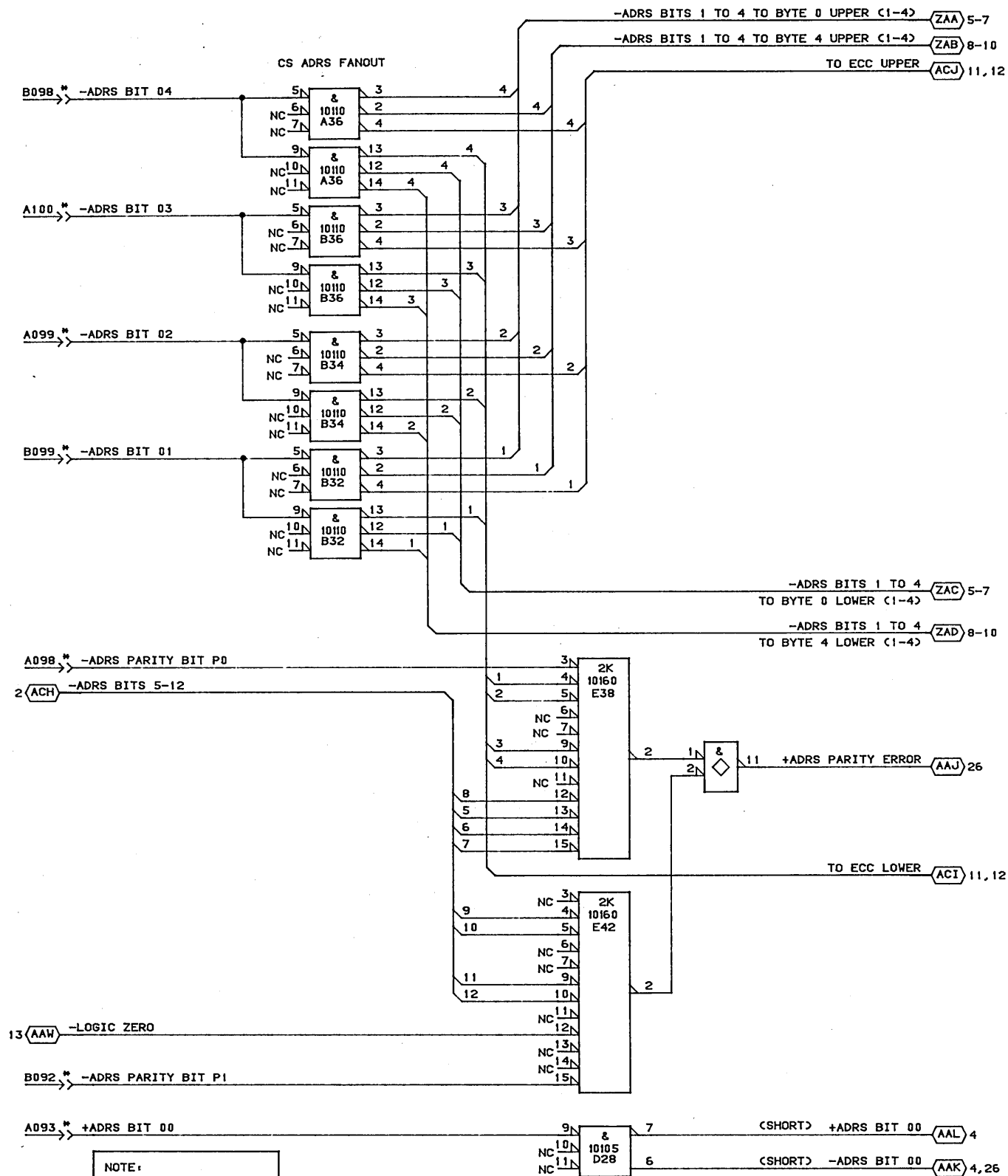




CONTROL  
DATA  
CANADA  
LTD

CS ADDRESS FANOUT  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

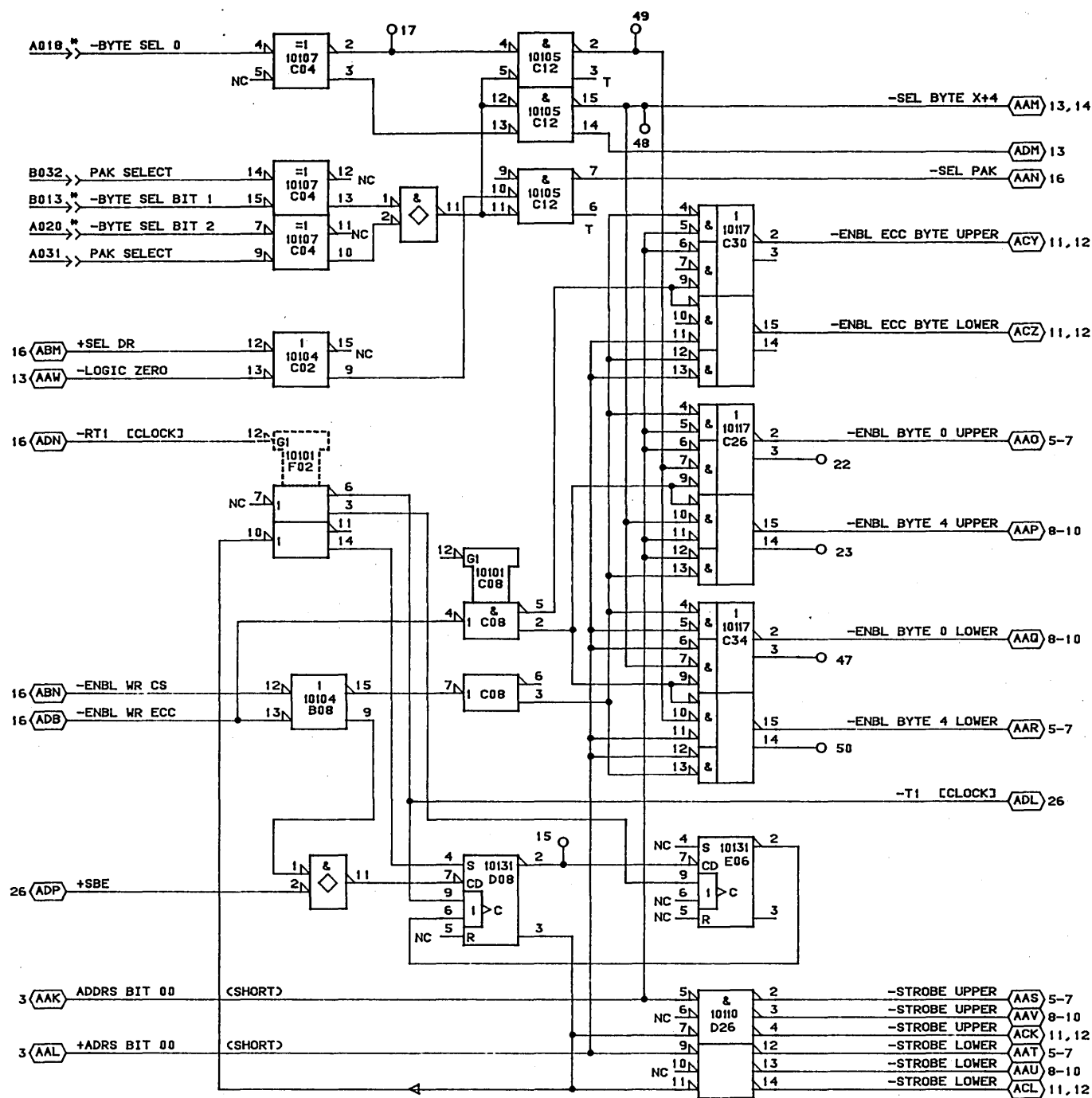
C	B
25-MAR-85	SHEET 02



CONTROL  
DATA  
CANADA  
LTD

CS ADDRESS FANOUT  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

	C		B
25-MAR-85	SHEET 03		



NOTE: \*DO NOT TERMINATE

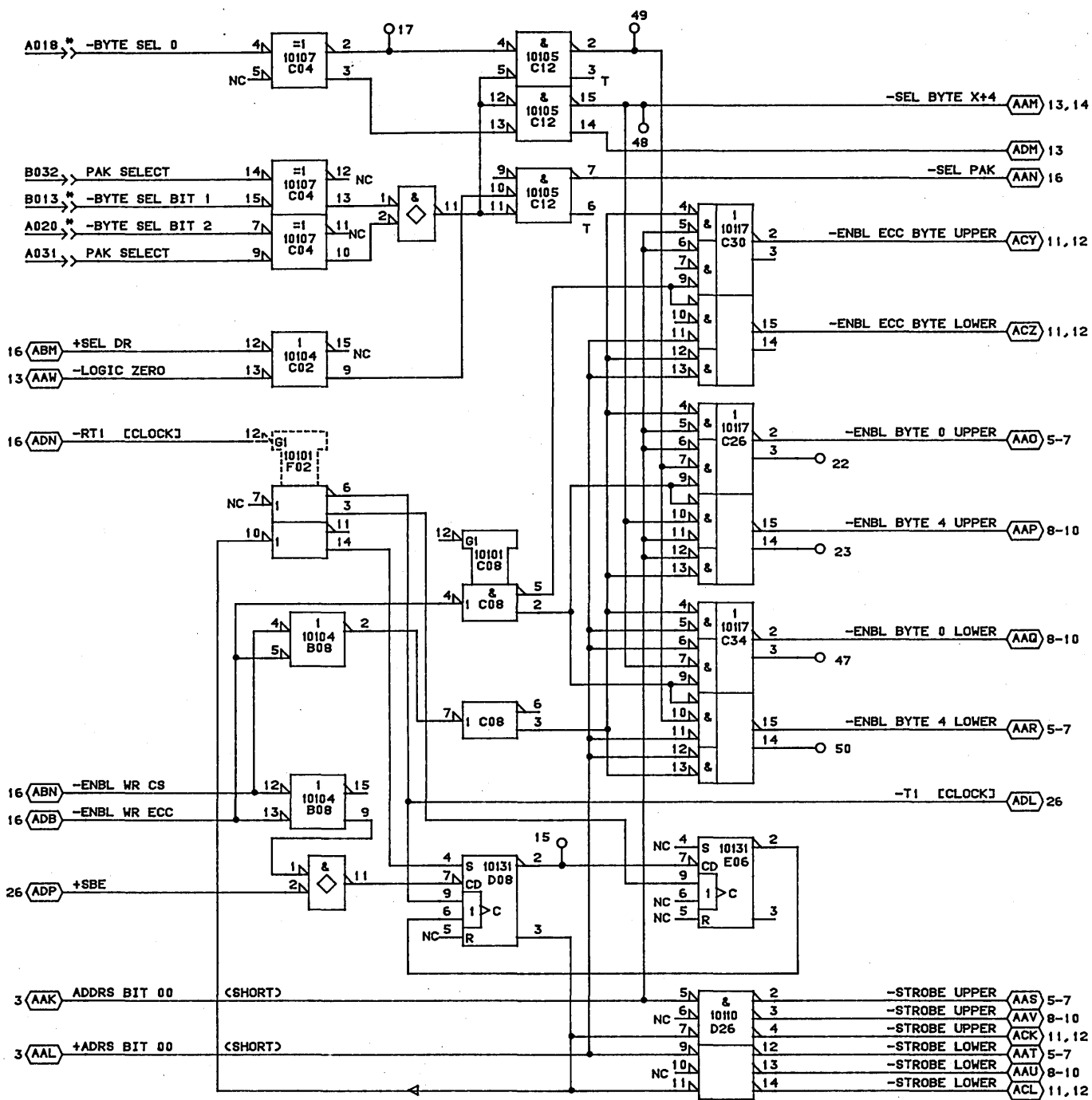
CONTROL  
DATA  
CANADA  
LTD

CS WRITE ENABLE  
CHIP ENABLE  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

C  
25-MAR-85

SHEET 04

B



NOTE: \*DO NOT TERMINATE

NOTE:  
THIS DRAWING IS  
APPLICABLE TO  
PWB 19268351 ONLY.

CONTROL  
DATA  
CANADA  
LTD

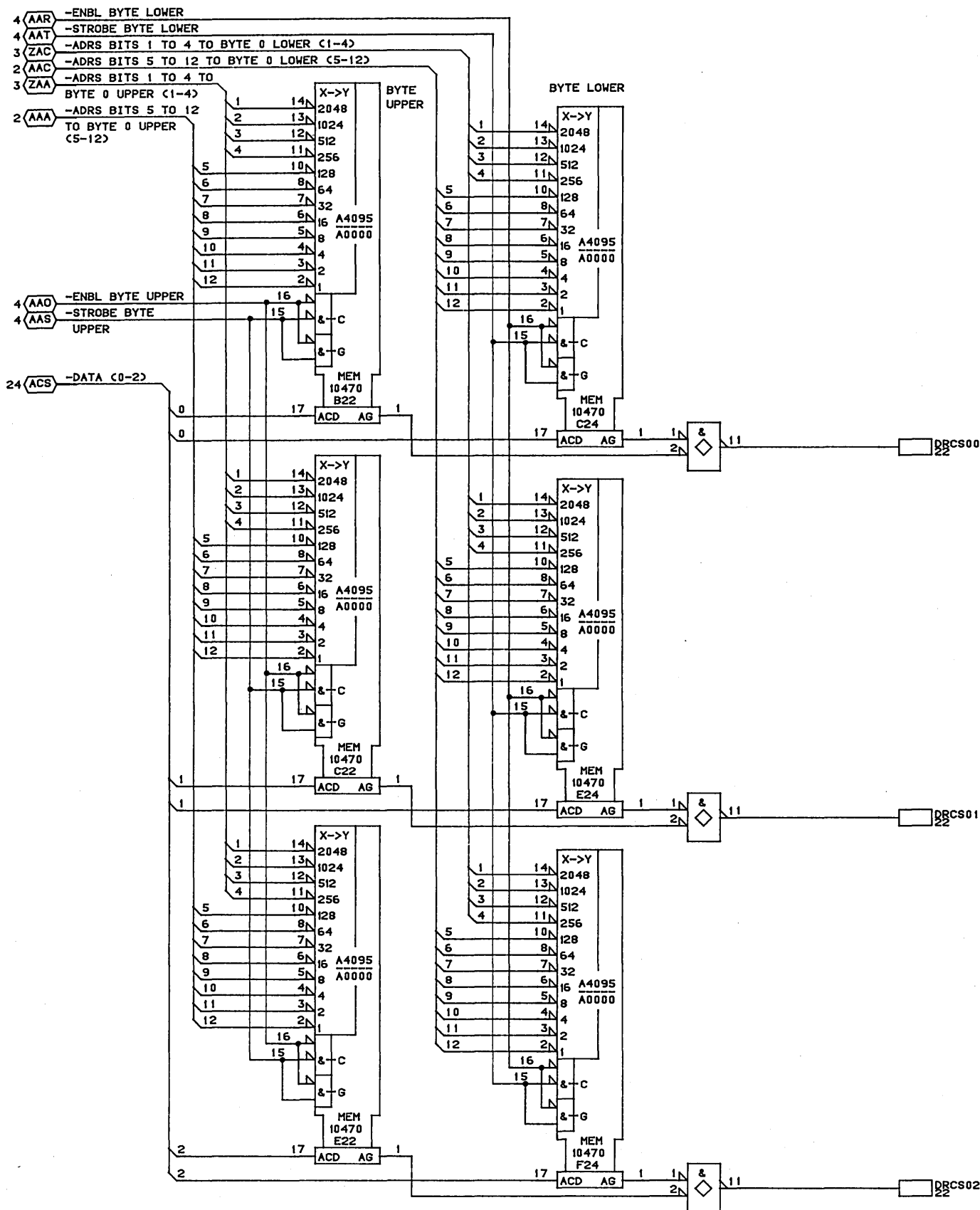
CS WRITE ENABLE  
CHIP ENABLE  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

26-MAR-85

SHEET 04A

C

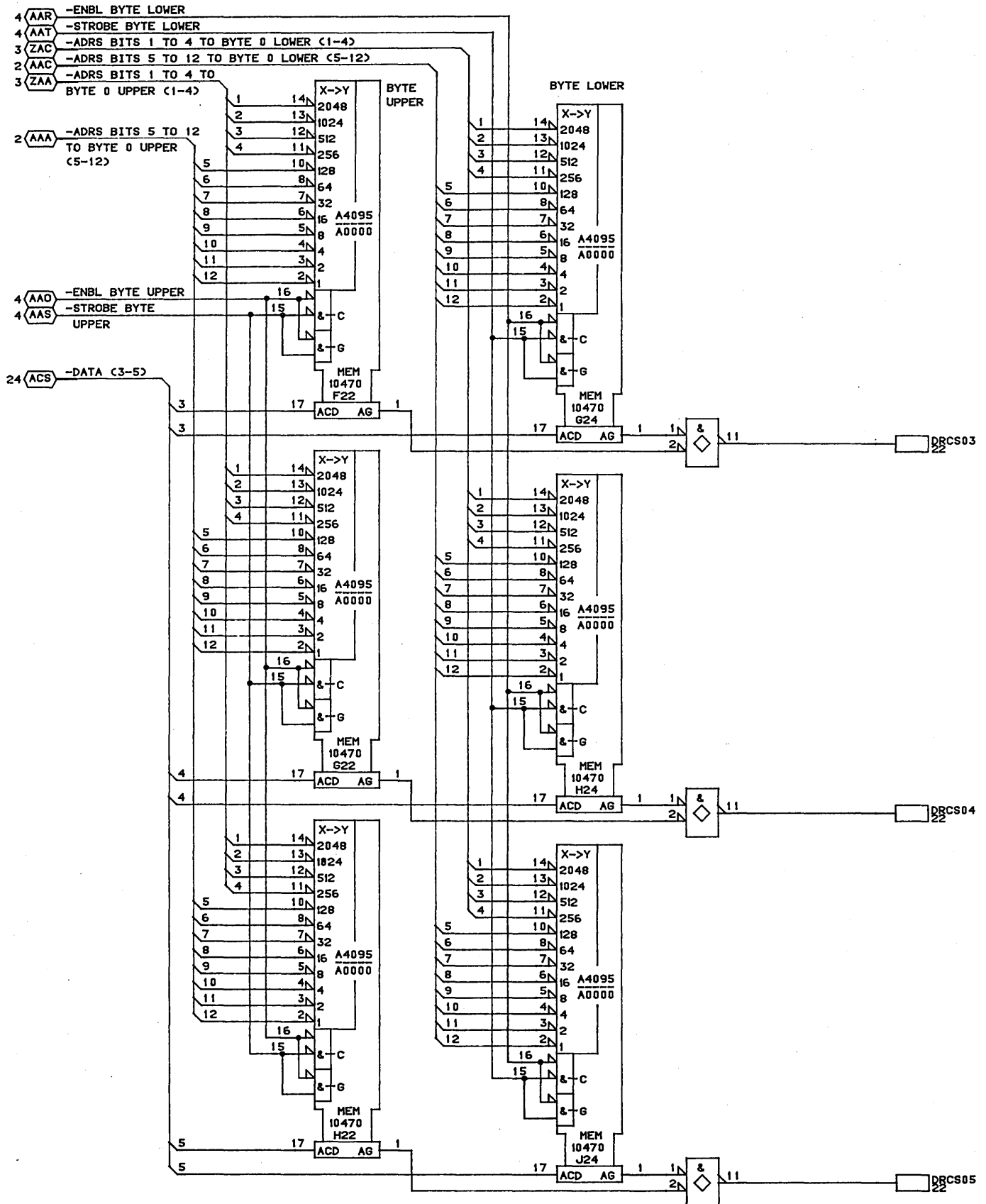
B



CONTROL  
 DATA  
 CANADA  
 LTD

CONTROL STORE 0  
 ECC BITS  
 MODULE ASSY - 210 PAK  
 TYPE: 1DR0

C	B
26-MAR-85	SHEET 05



CONTROL  
 DATA  
 CANADA  
 LTD

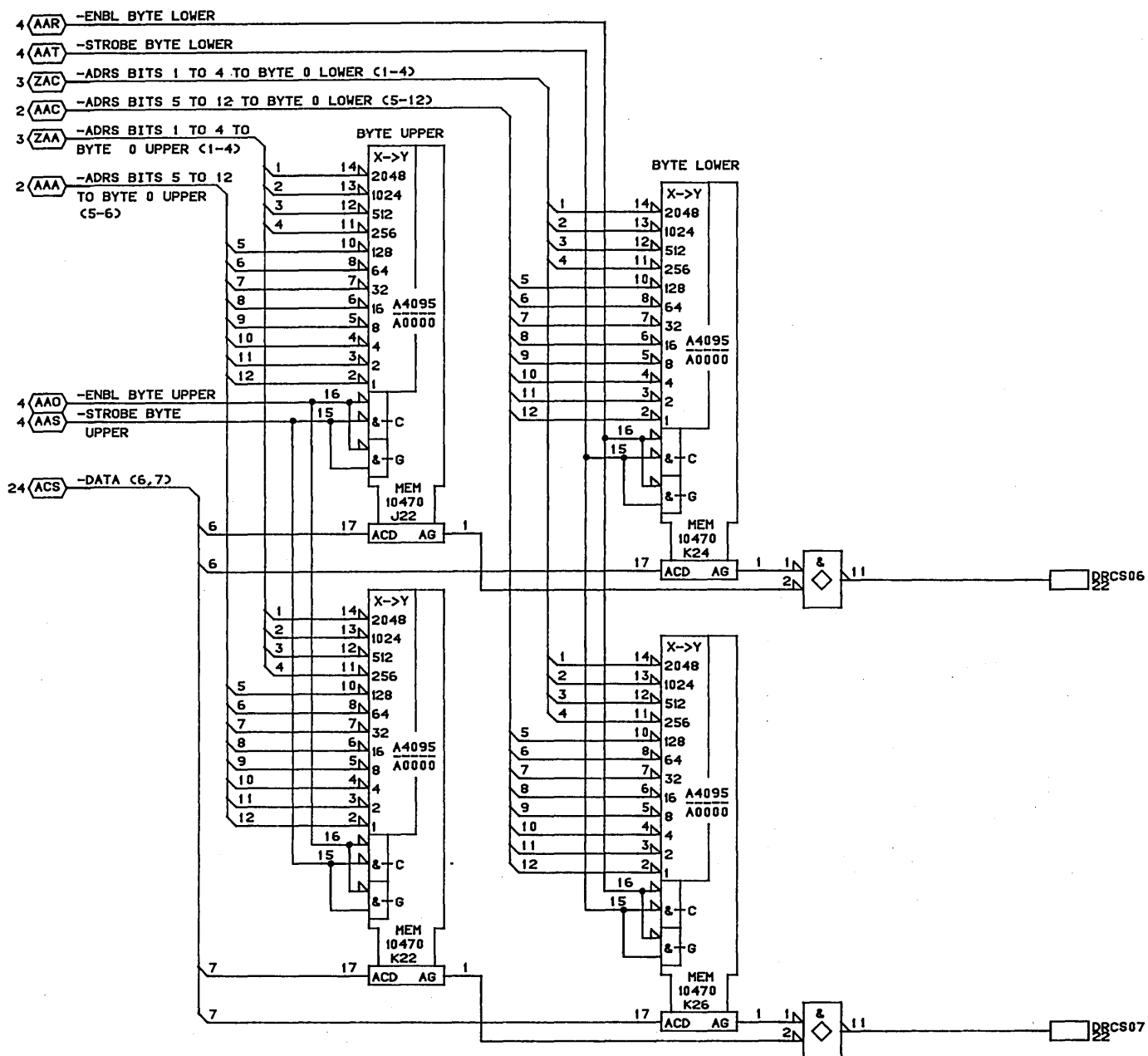
CONTROL STORE ●  
 ECC BITS  
 MODULE ASSY - 210 PAK  
 TYPE: 1DR0

26-MAR-85

SHEET 06

C

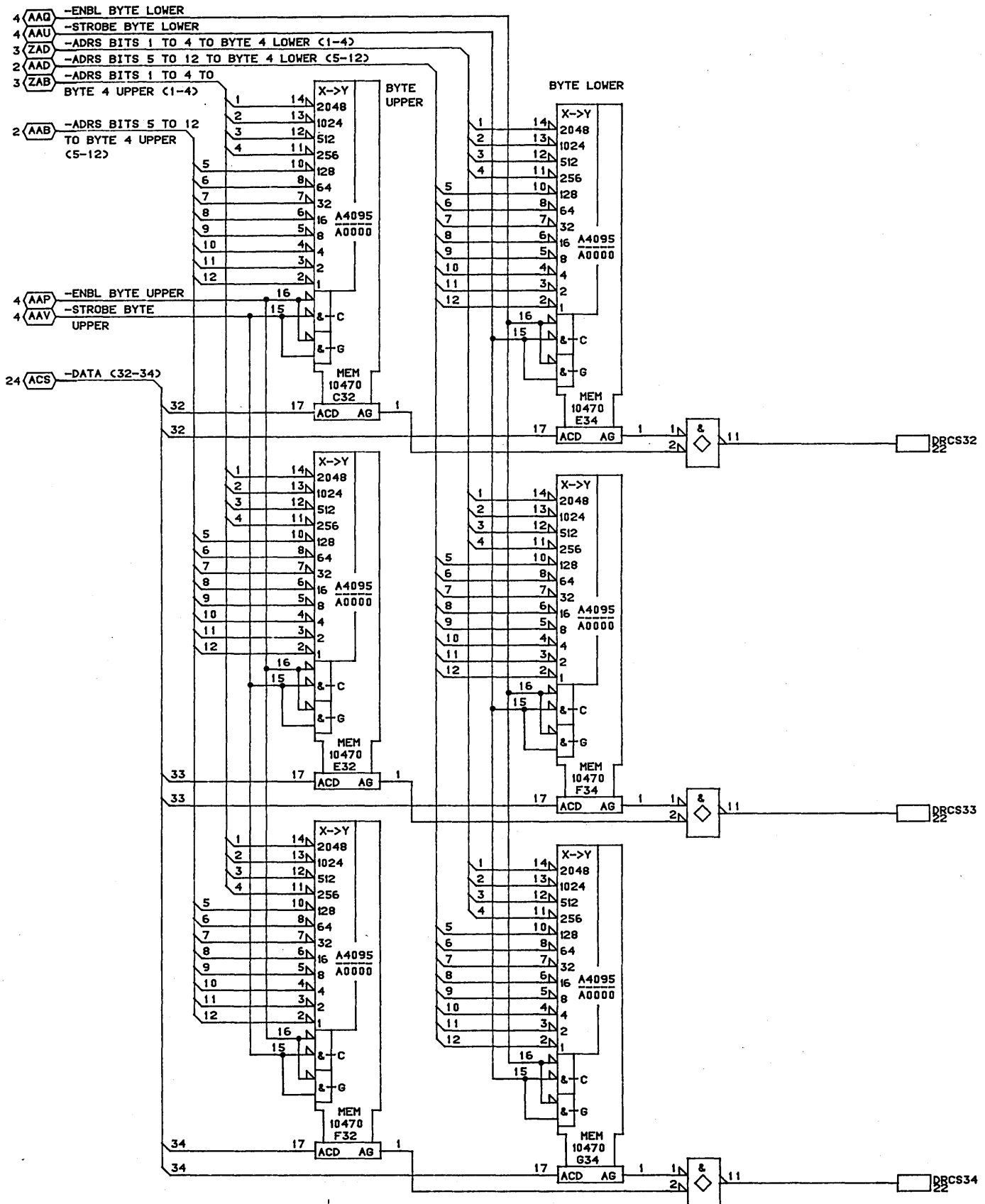
B



CONTROL  
DATA  
CANADA  
LTD

CONTROL STORE #  
CS BITS  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

	C		B
26-MAR-85	SHEET 07		

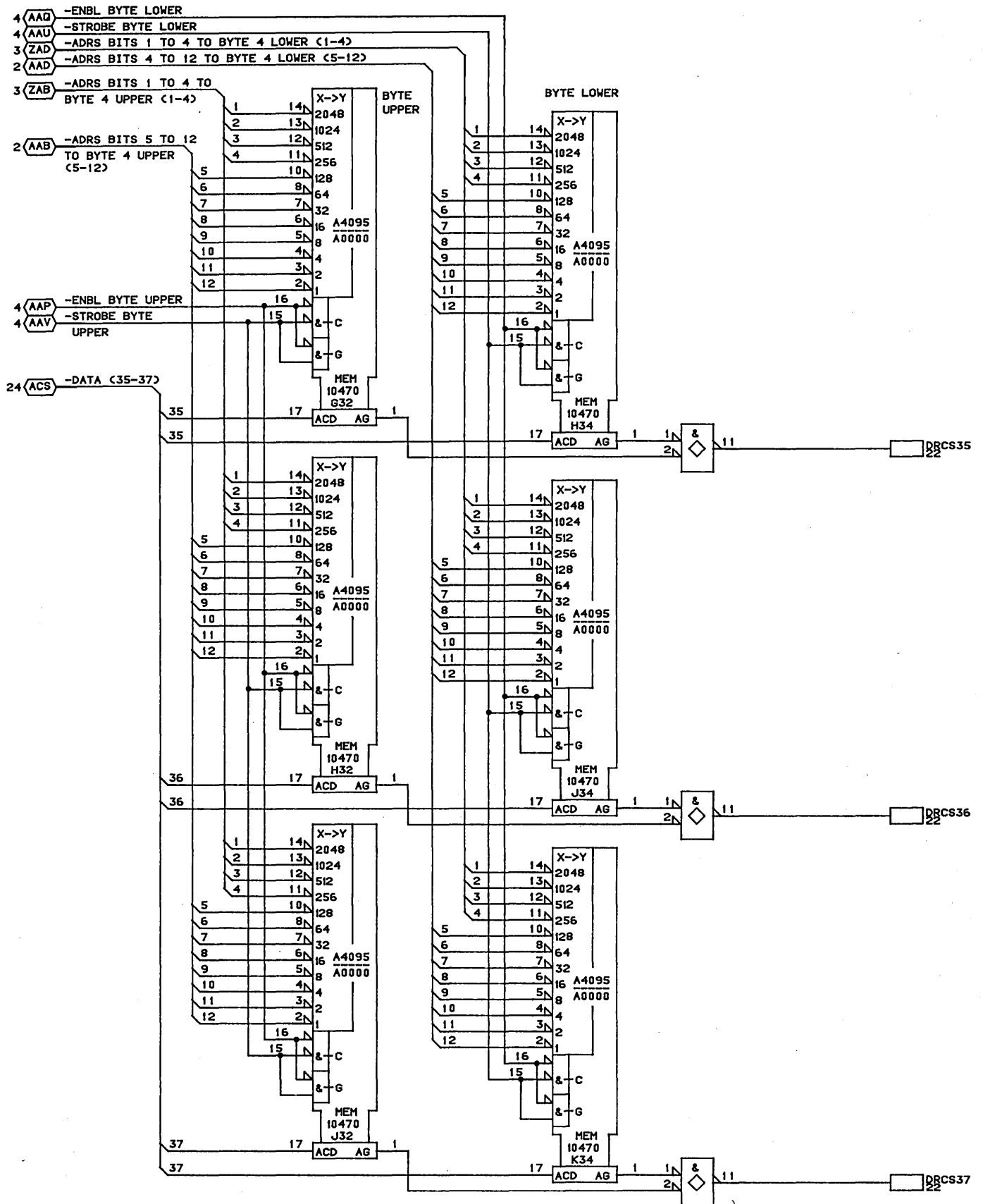


CONTROL  
 DATA  
 CANADA  
 LTD

CONTROL STORE •  
 CS BITS  
 MODULE ASSY - 210 PAK  
 TYPE: 1DR0

	C		B
26-MAR-85	SHEET 08		





CONTROL  
 DATA  
 CANADA  
 LTD

CONTROL STORE #  
 CS BITS  
 MODULE ASSY - 210 PAK  
 TYPE: 1DR0

C

B

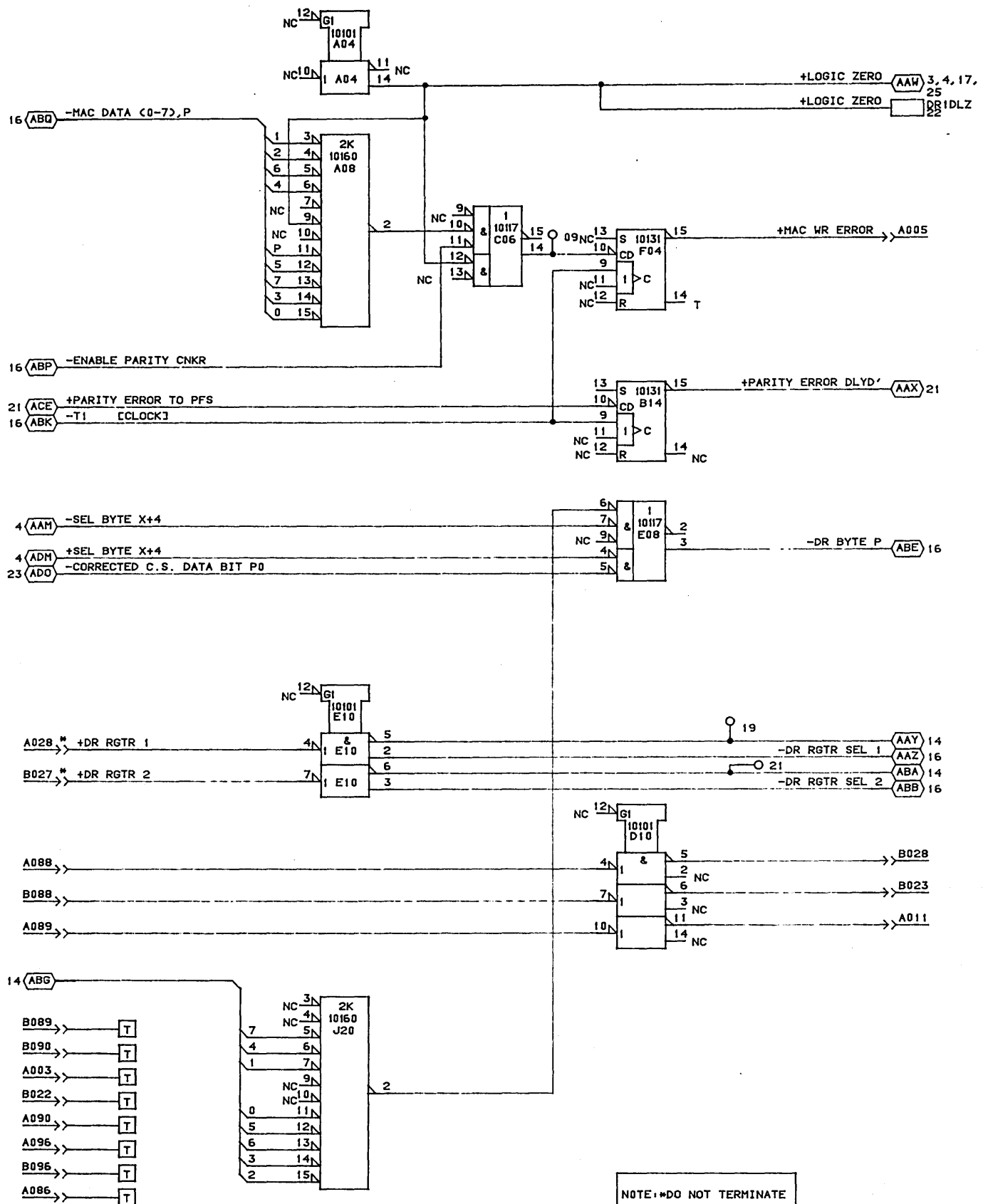
26-MAR-85

SHEET 09







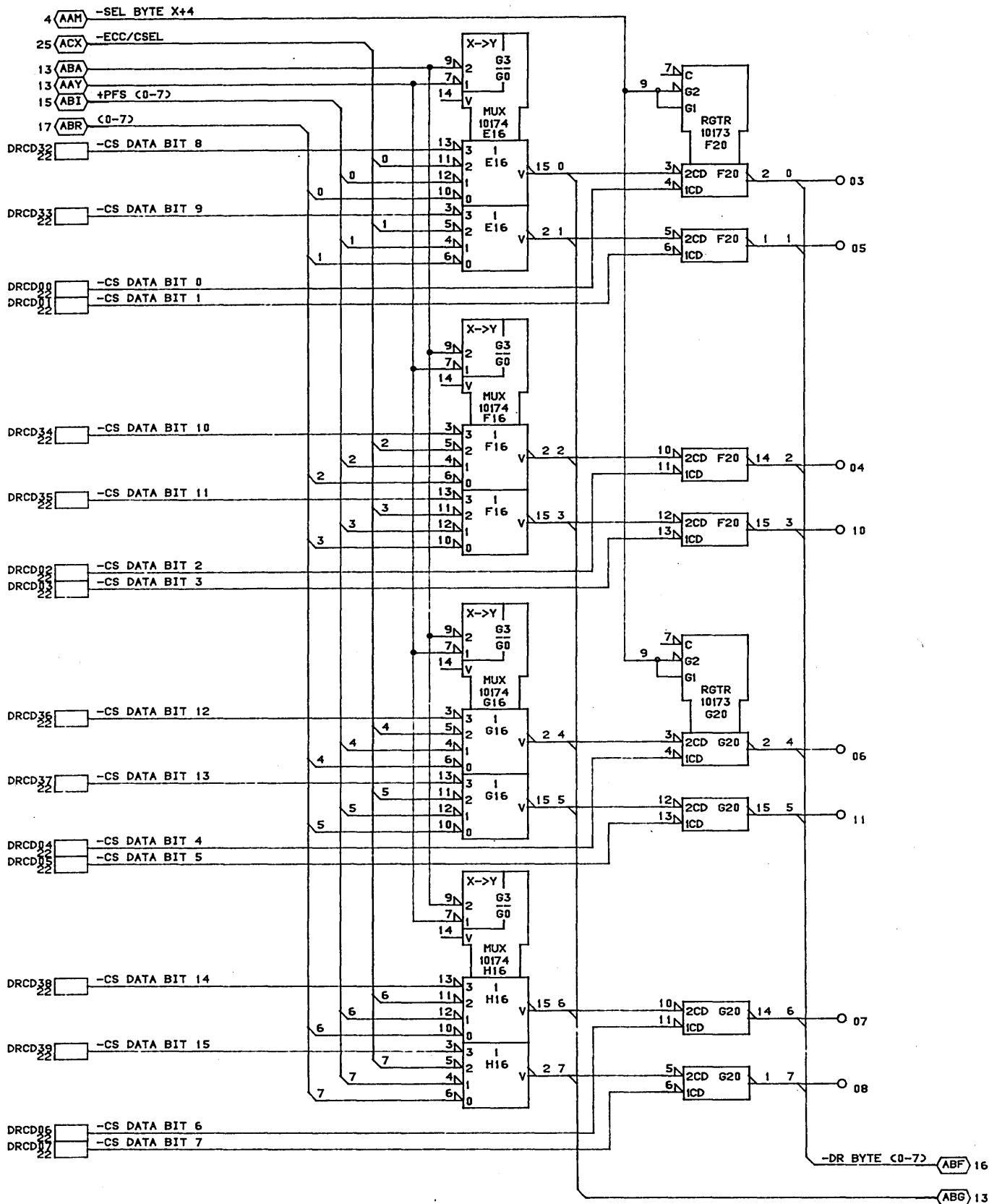


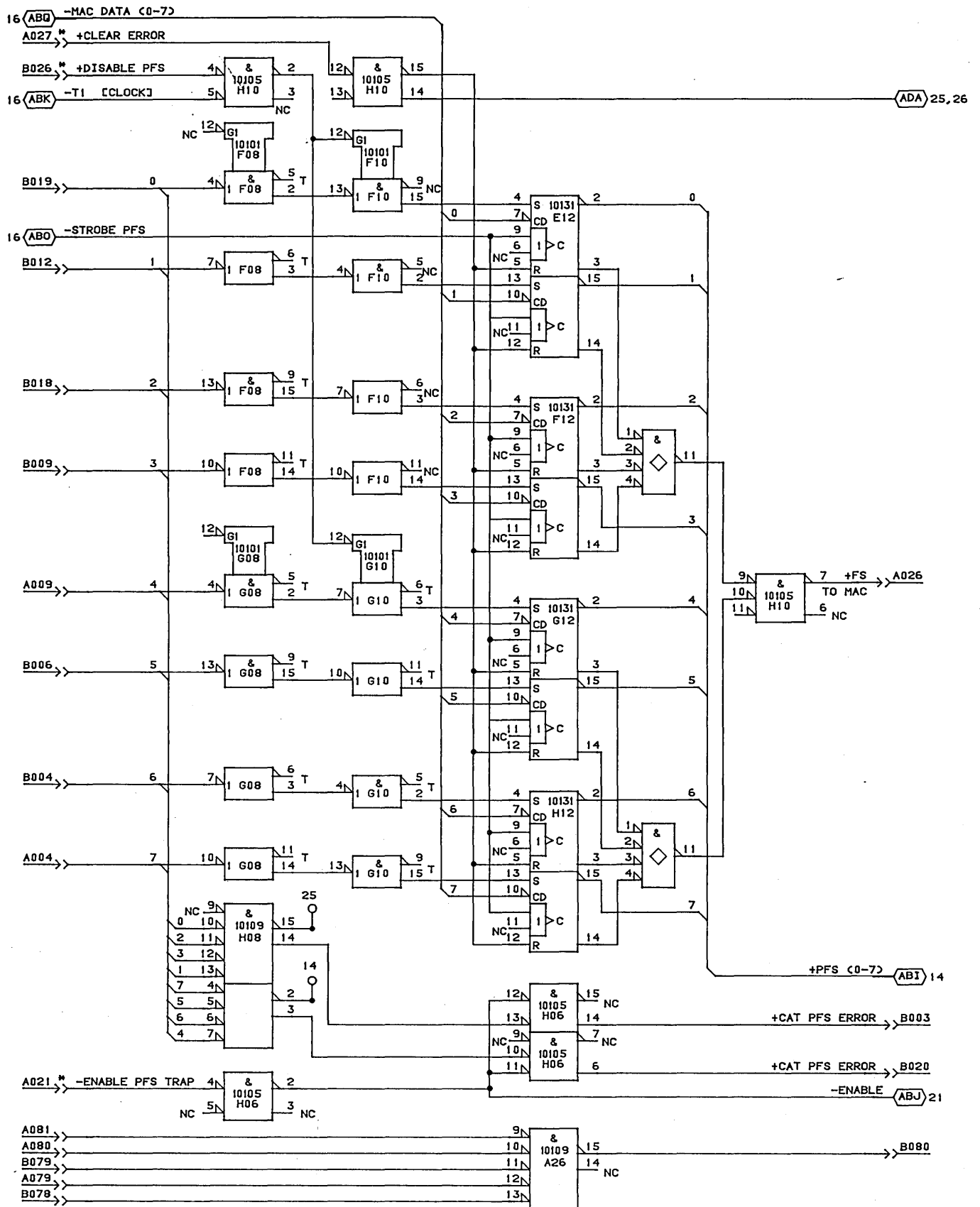
CONTROL  
DATA  
CANADA  
LTD

DATA PARITY CHECKER  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

27-MAR-85

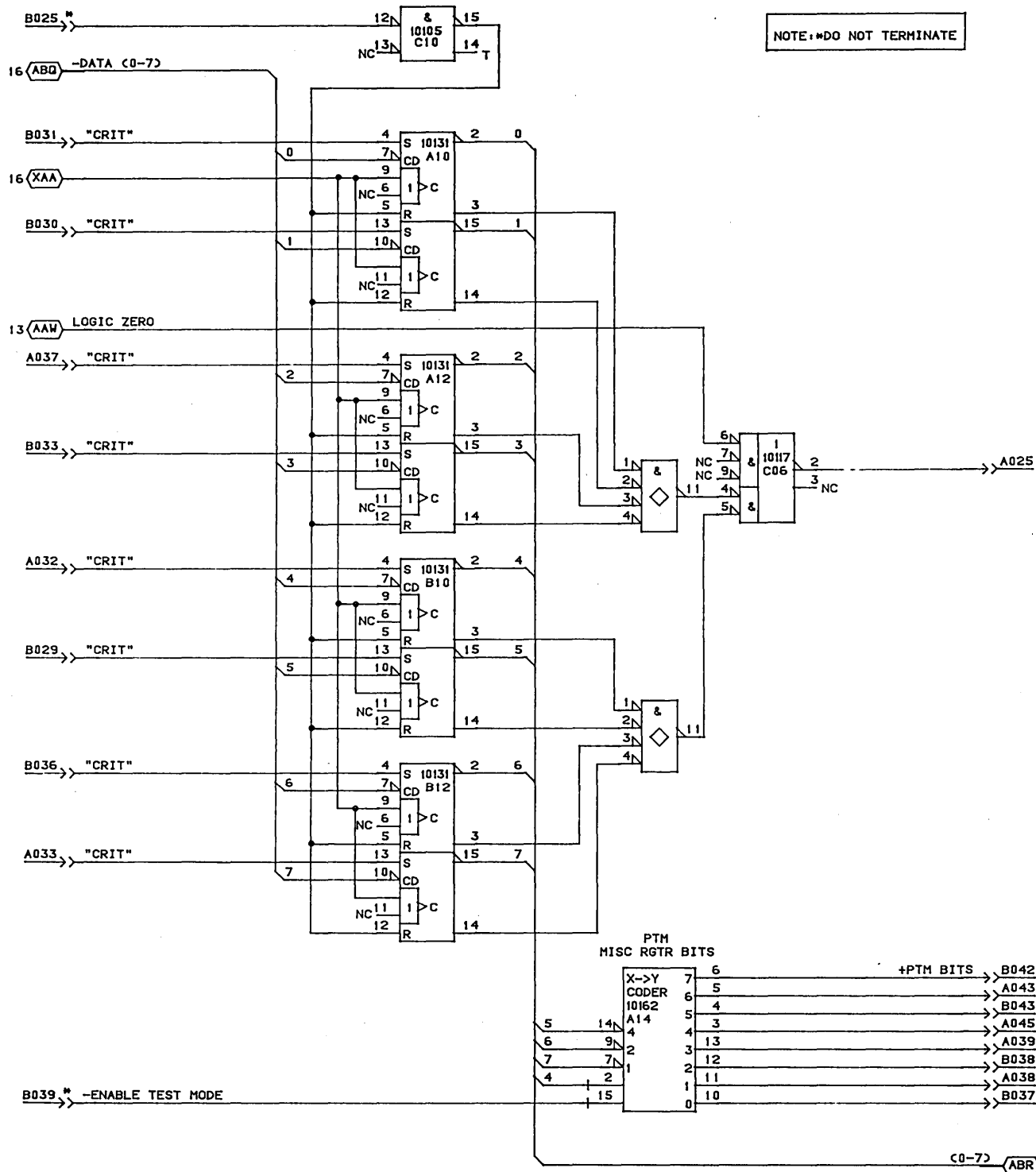
SHEET 13











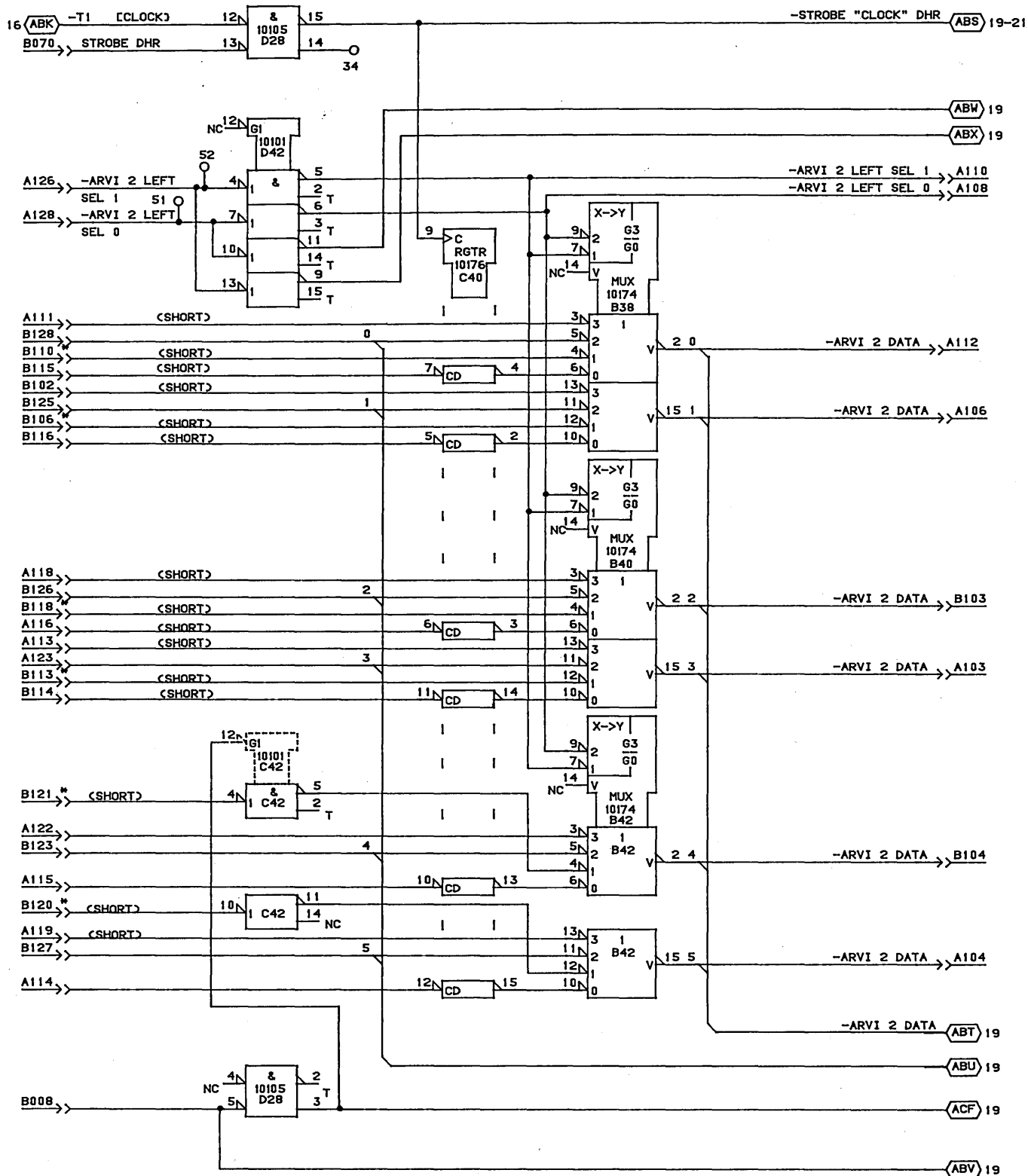
CONTROL  
DATA  
CANADA  
LTD

MODULE ASSY - 210 PAK  
TYPE: 1DR0

27-MAR-85

SHEET 17

B



NOTE: \*DO NOT TERMINATE

CONTROL  
DATA  
CANADA  
LTD

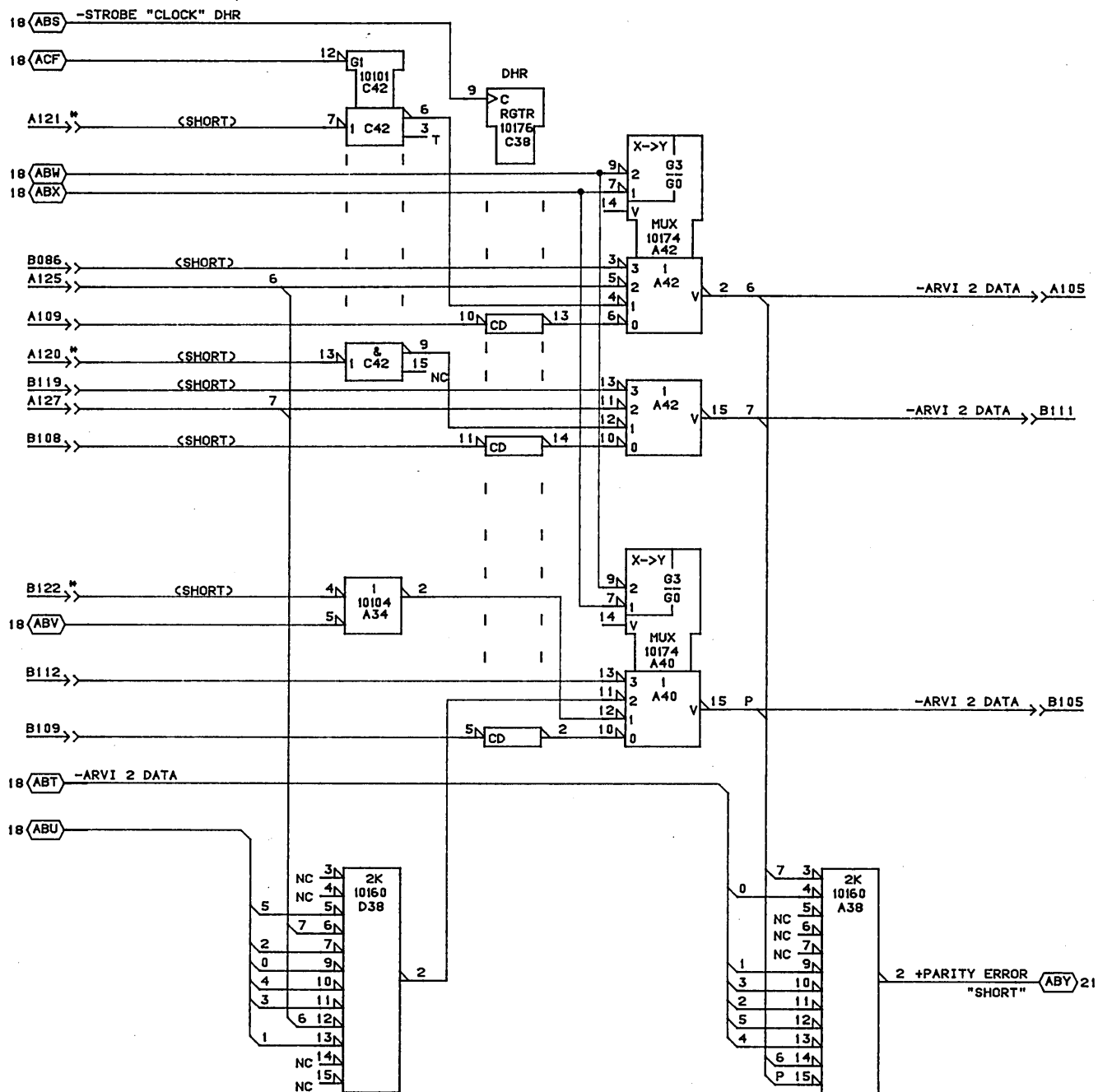
ARVI 2MUX  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

27-MAR-85

SHEET 18

C

B



NOTE:  
\* DO NOT TERMINATE

CONTROL  
DATA  
CANADA  
LTD

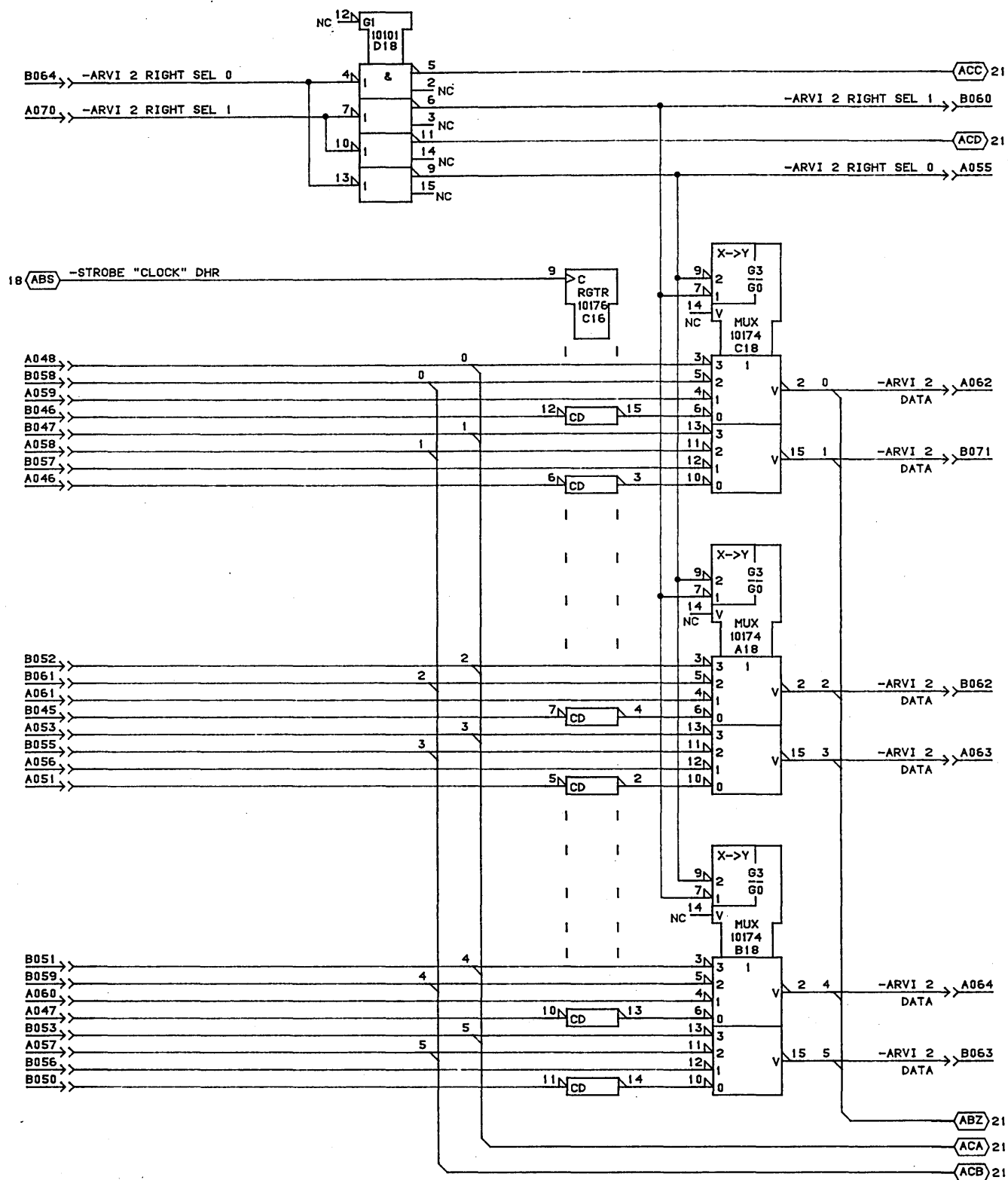
ARVI 2 MUX  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

C

B

27-MAR-85

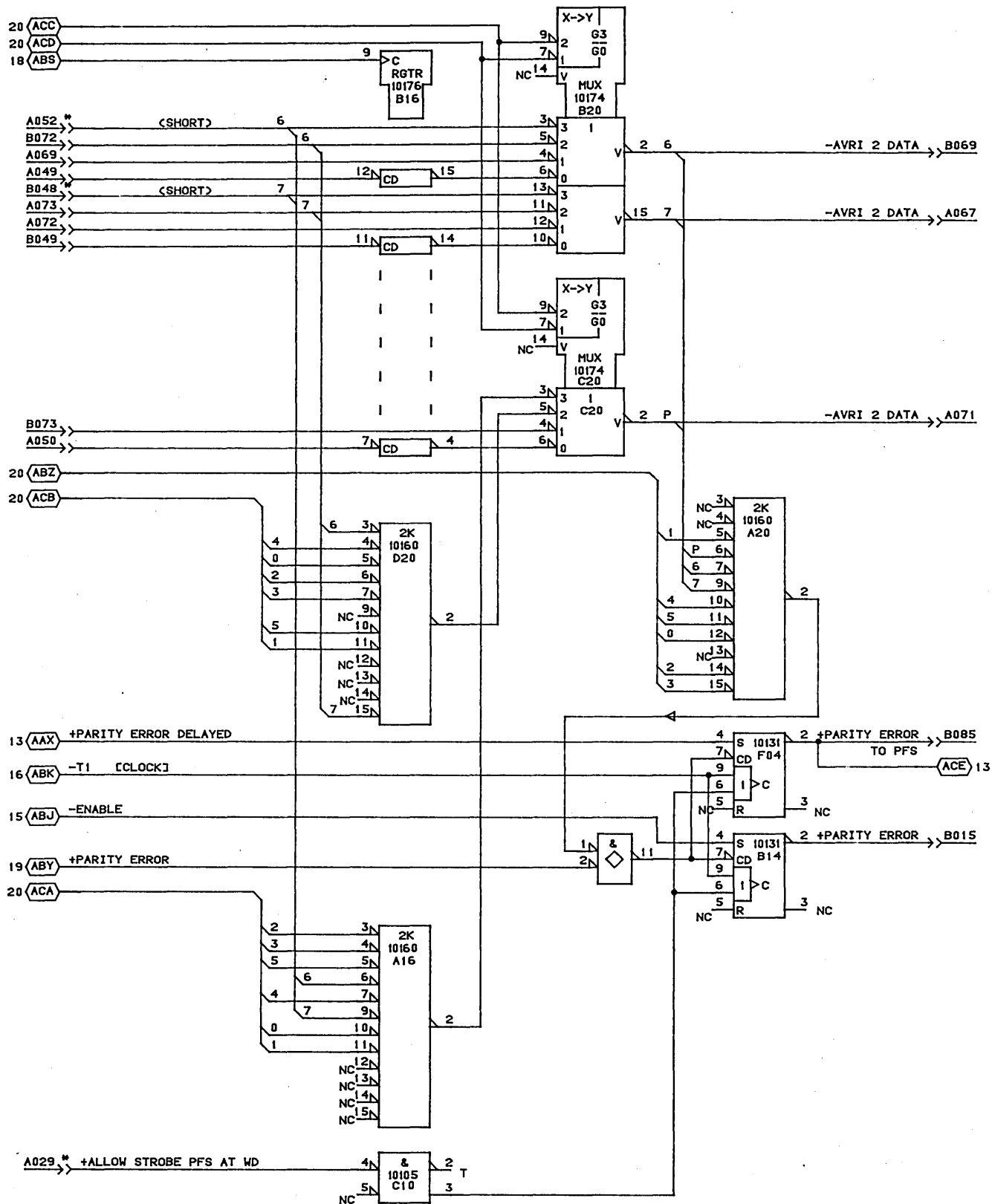
SHEET 19



CONTROL  
DATA  
CANADA  
LTD

ARVI 2 MUX  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

	C		B
27-MAR-85	SHEET 20		



CONTROL  
DATA  
CANADA  
LTD

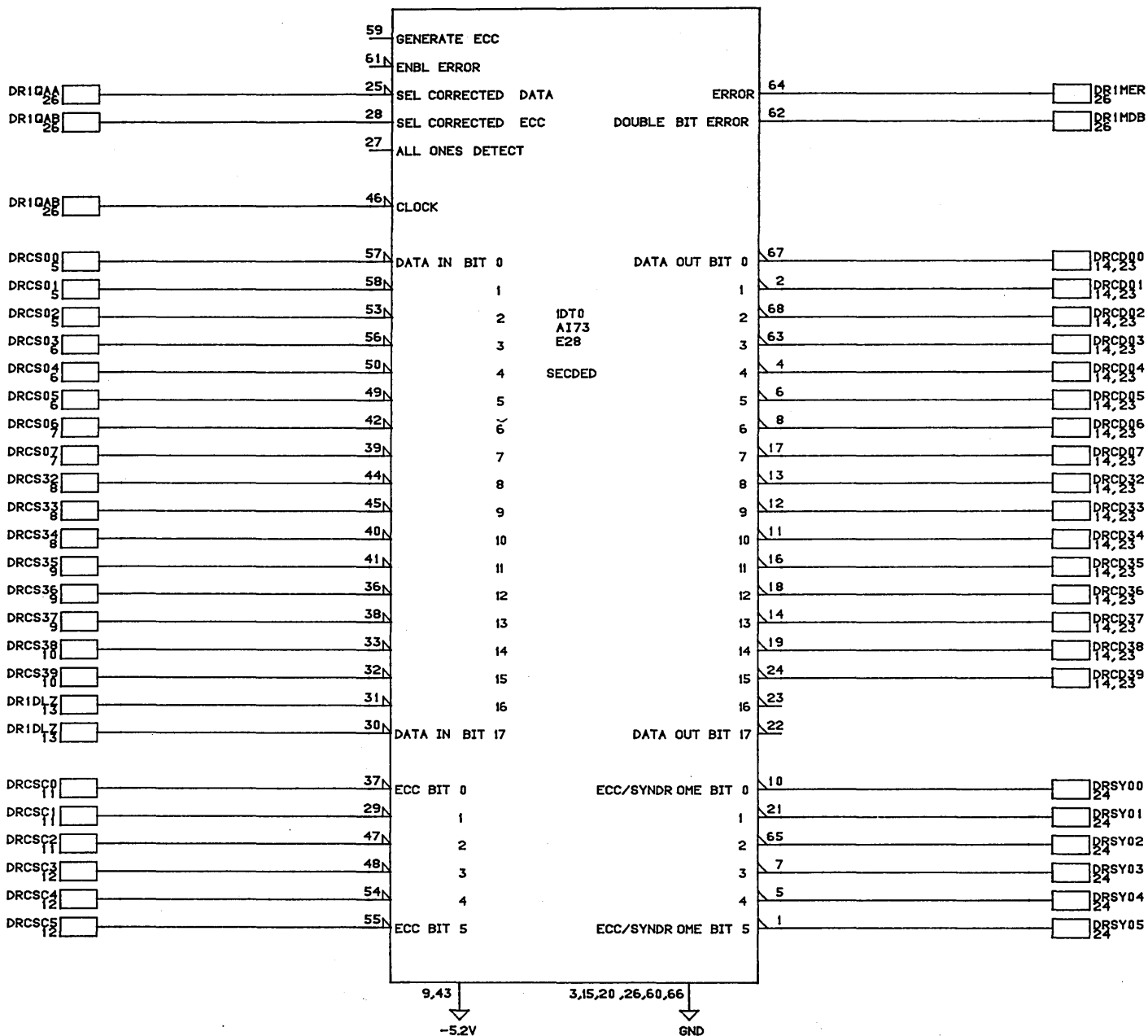
ARVI 2 MUX  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

27-MAR-85

SHEET 21

C

B



CONTROL  
 DATA  
 CANADA  
 LTD

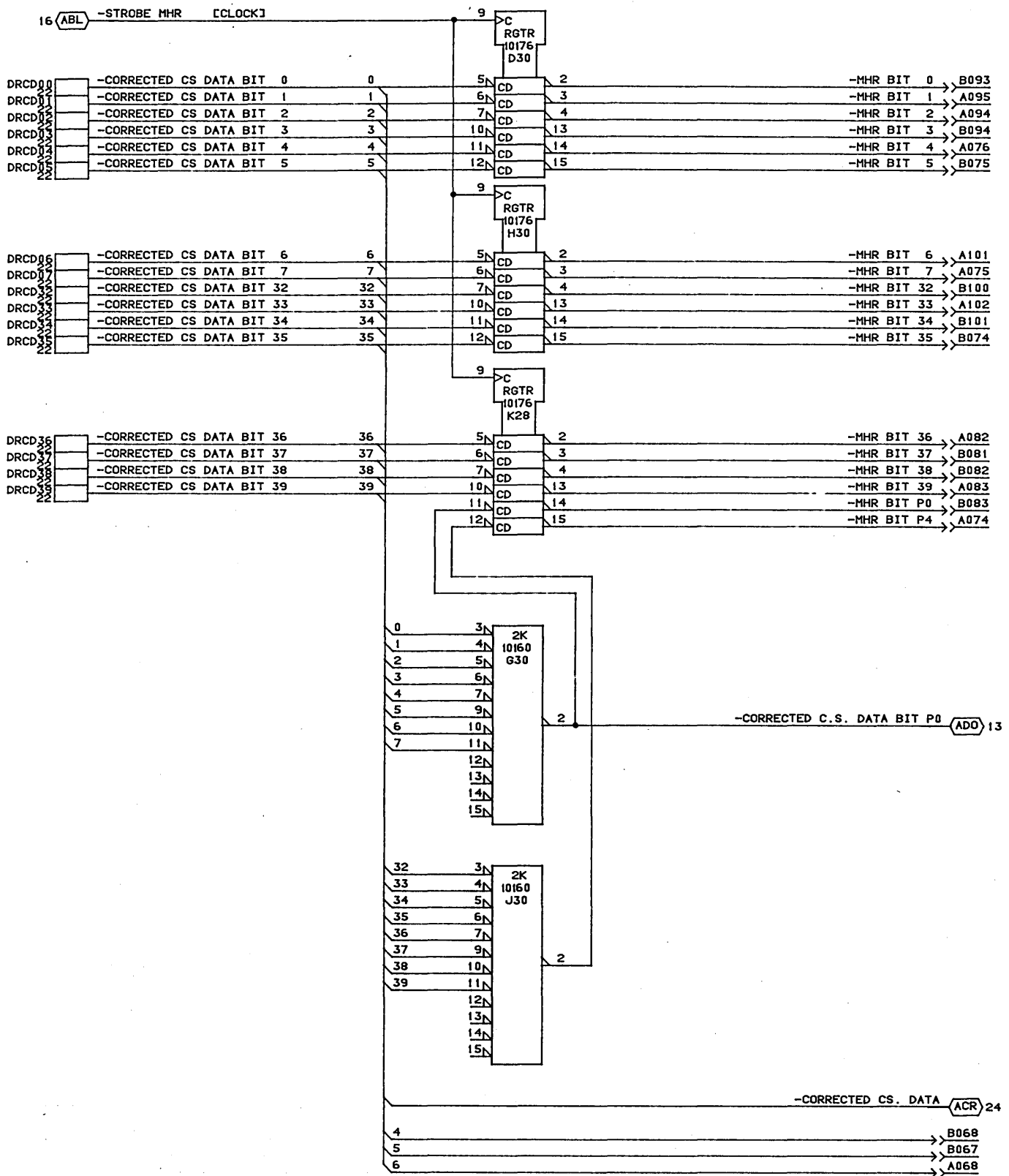
MODULE ASSY - 210 PAK  
 TYPE: 1DR0

03-APR-85

SHEET 22

C

B



CONTROL  
DATA  
CANADA  
LTD

MHR REGISTER  
MODULE ASSY - 210 PAK  
TYPE: 1DR0

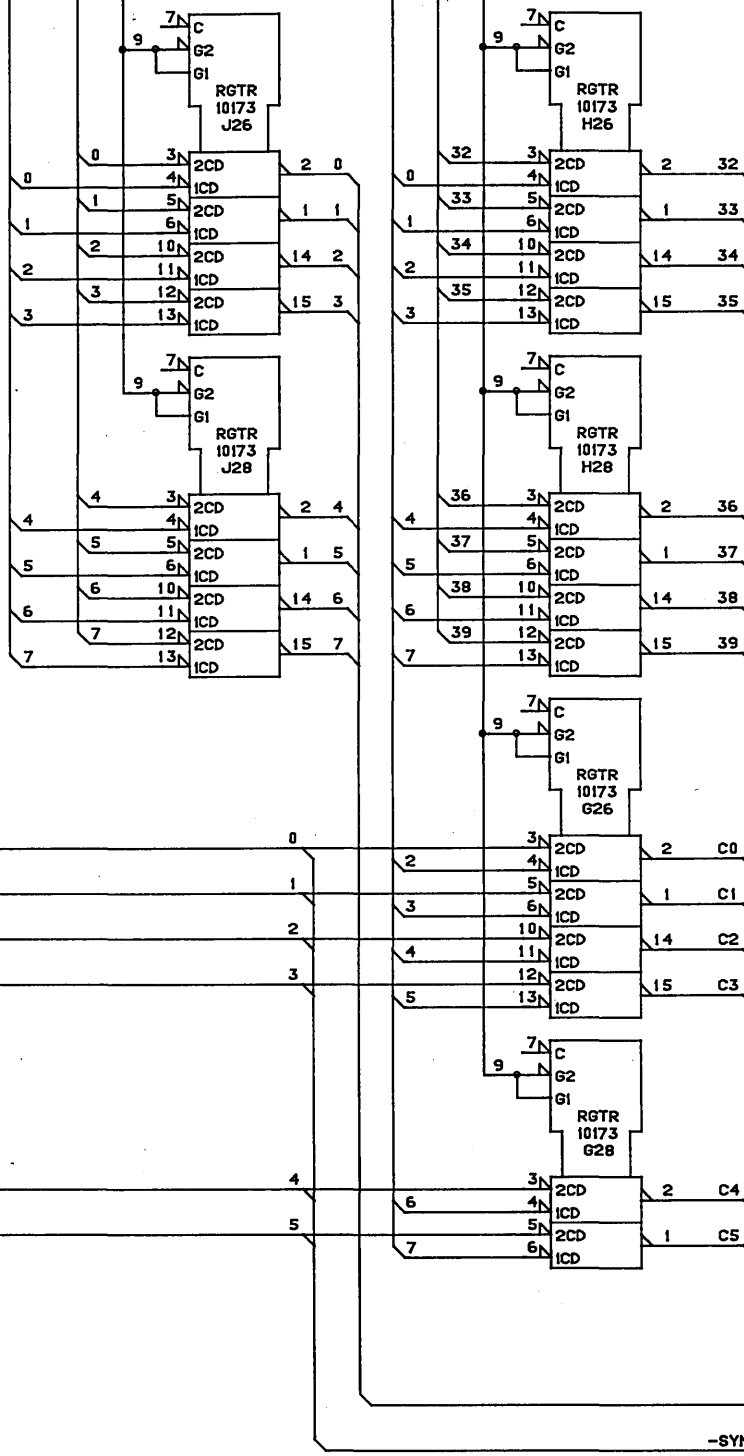
27-MAR-85

SHEET 23

C

B

23 **ACR** -CORRECTED CS DATA  
 16 **ABQ** -MAC DATA  
 26 **ACU** -SEL CORRECTED DATA

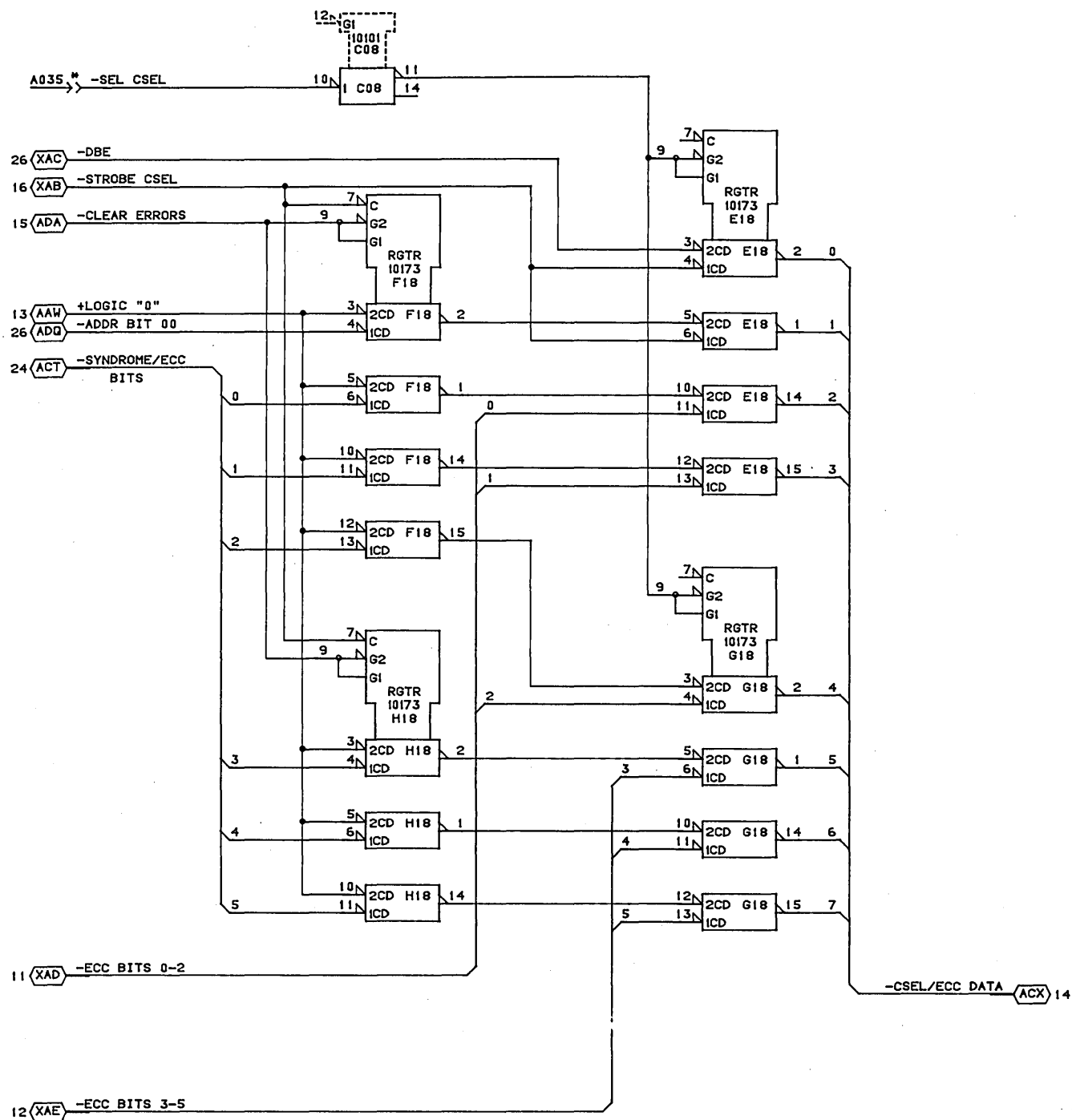


C.S. DATA IN **ACS** 5-12

-SYNDROME/ECC BITS 0-5 **ACT** 25

CONTROL DATA CANADA LTD	C.S. DATA IN MUX MODULE ASSY - 210 PAK TYPE: 1DR0		C		B
		27-MAR-85	SHEET 24		





\* SHORT AND DO NOT  
TERMINATE

CONTROL  
DATA  
CANADA  
LTD

CSEL/ECC DATA  
MODULE ASSY: 210 PAK  
TYPE: 1DR0

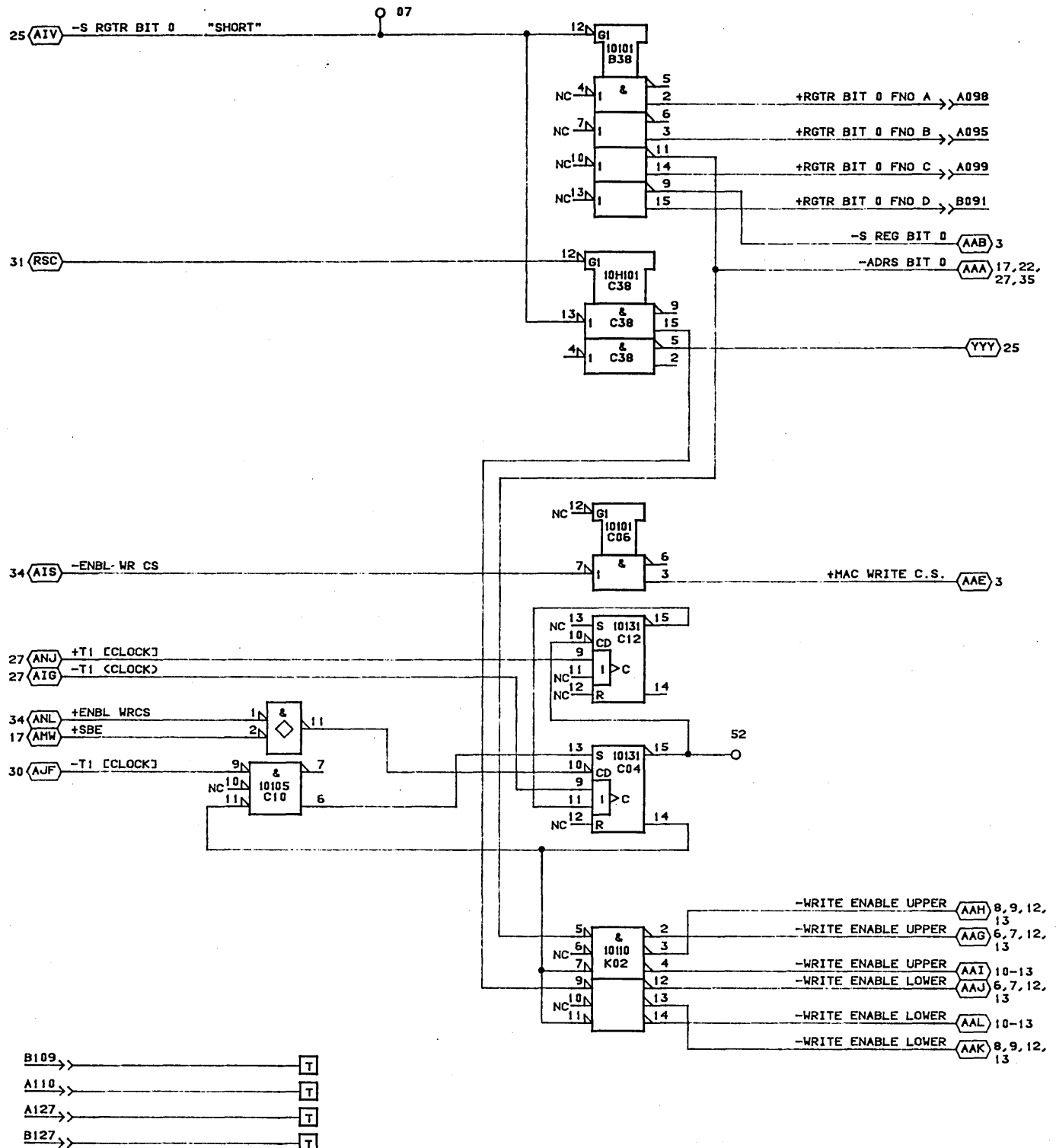
27-MAR-85

SHEET 25

C

B





CONTROL  
DATA  
CANADA  
LTD

S RGTR BIT FANOUT  
MODULE ASSY:210 PAK  
TYPE: 1DS0

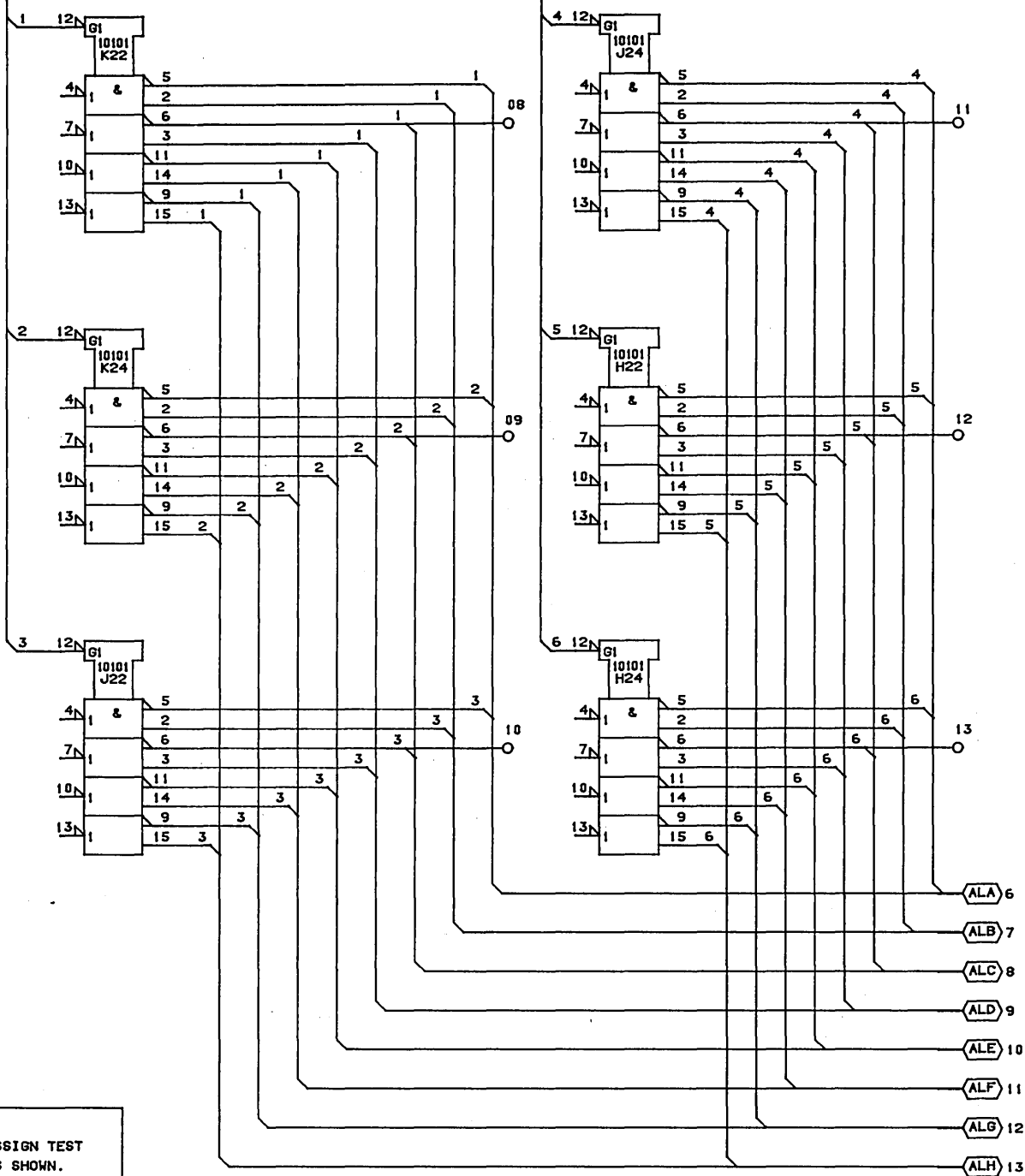
12-APR-85

SHEET 02

B

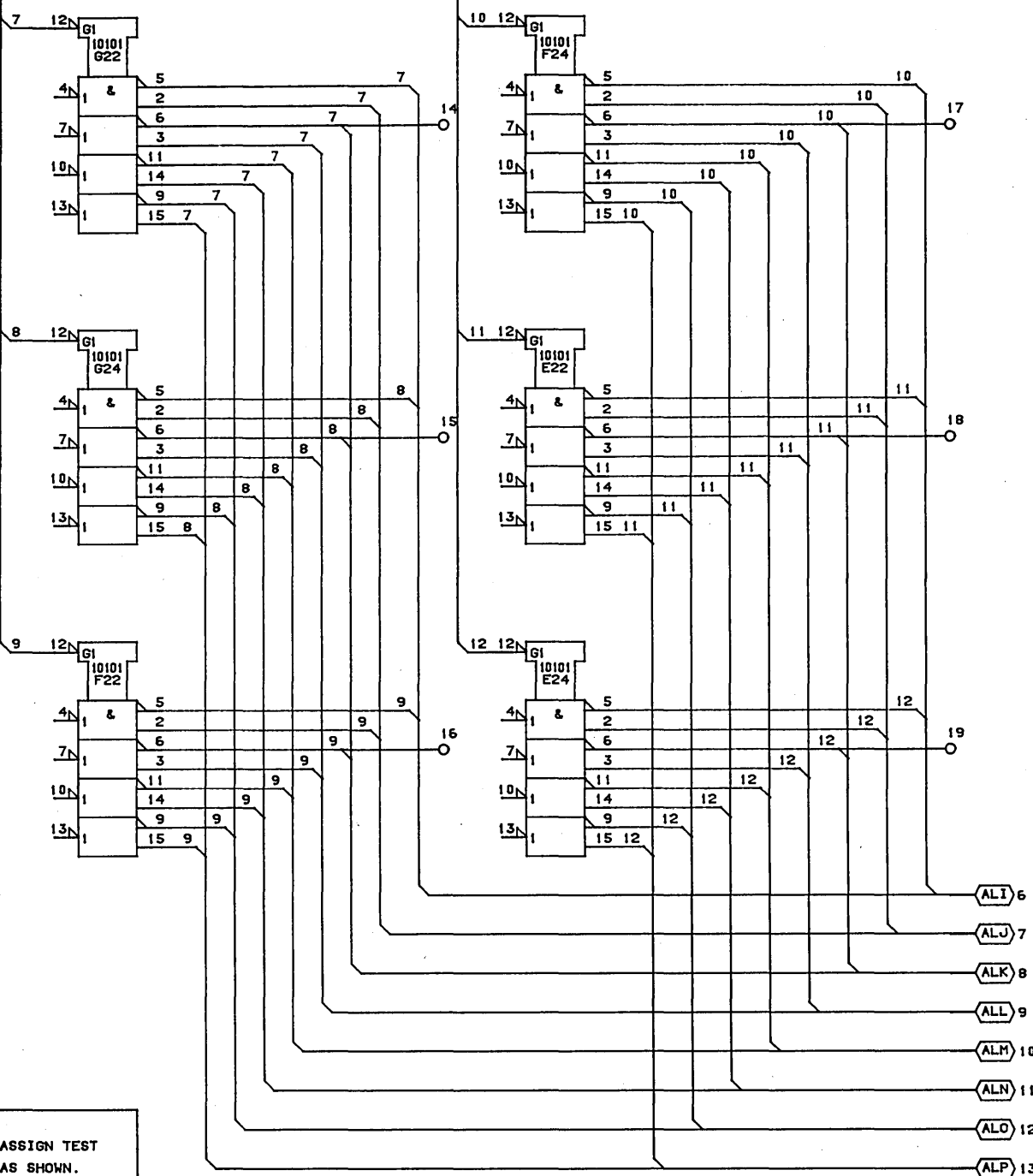


25 (AIN) -S REGISTER BITS 1-6 "SHORT"



NOTE:  
PLEASE ASSIGN TEST  
POINTS AS SHOWN.

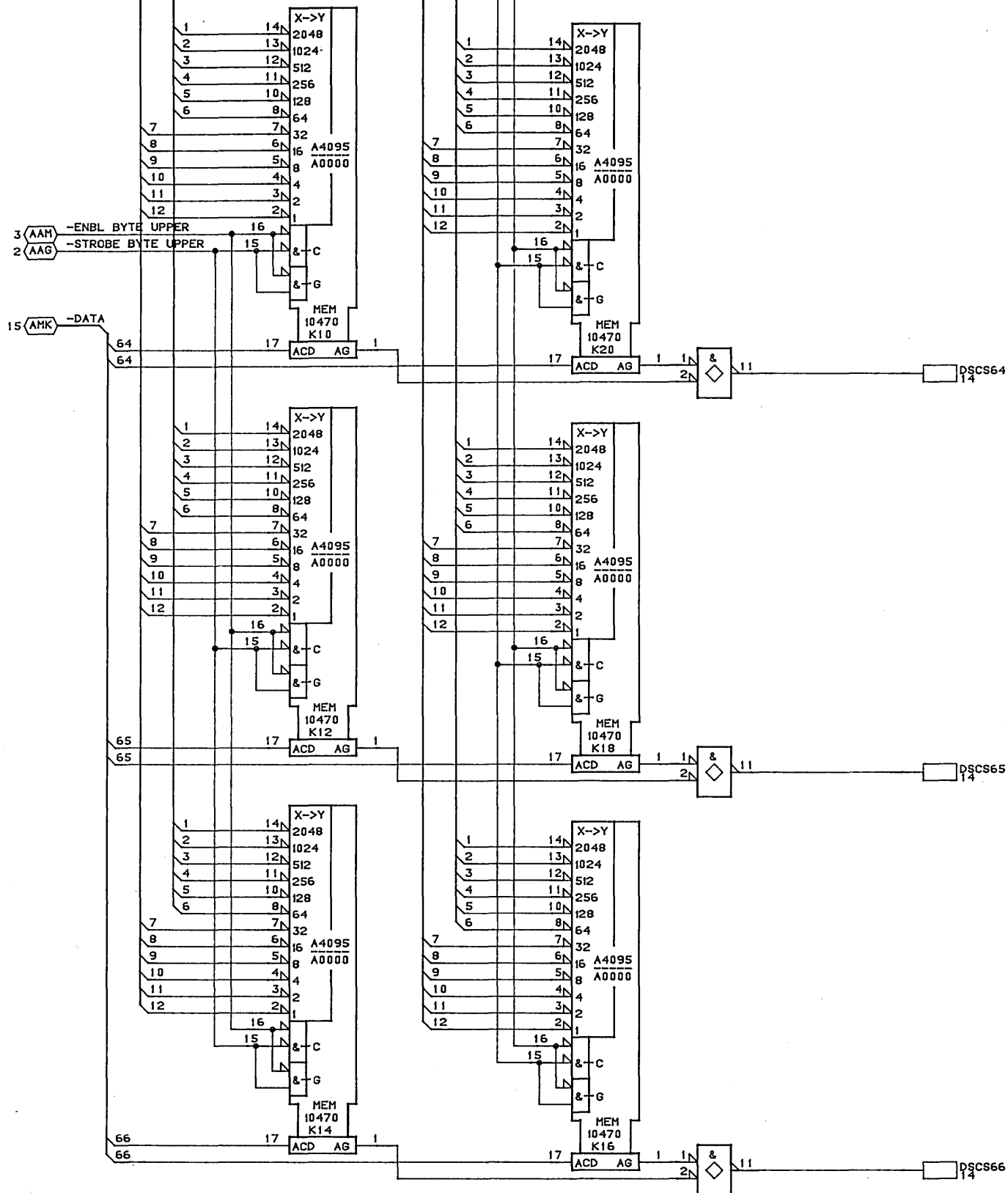
25 (AIW) -S REGISTER BITS 7-12 "SHORT"



NOTE:  
PLEASE ASSIGN TEST  
POINTS AS SHOWN.

CONTROL DATA CANADA LTD	S REGISTER FANOUT BITS 7-12 MODULE ASSY: 210 PAK TYPE: 1DS0	C	1	B
		01-APR-85	SHEET 05	

3 (AAP) -ENBL BYTE LOWER  
 2 (AAJ) -STROBE BYTE LOWER  
 4 (ALA) -ADRS. BITS 1-6 TO BYTE (1-4)  
 5 (ALI) -ADRS. BITS 7-12 TO BYTE 4 LOWER (5-12)



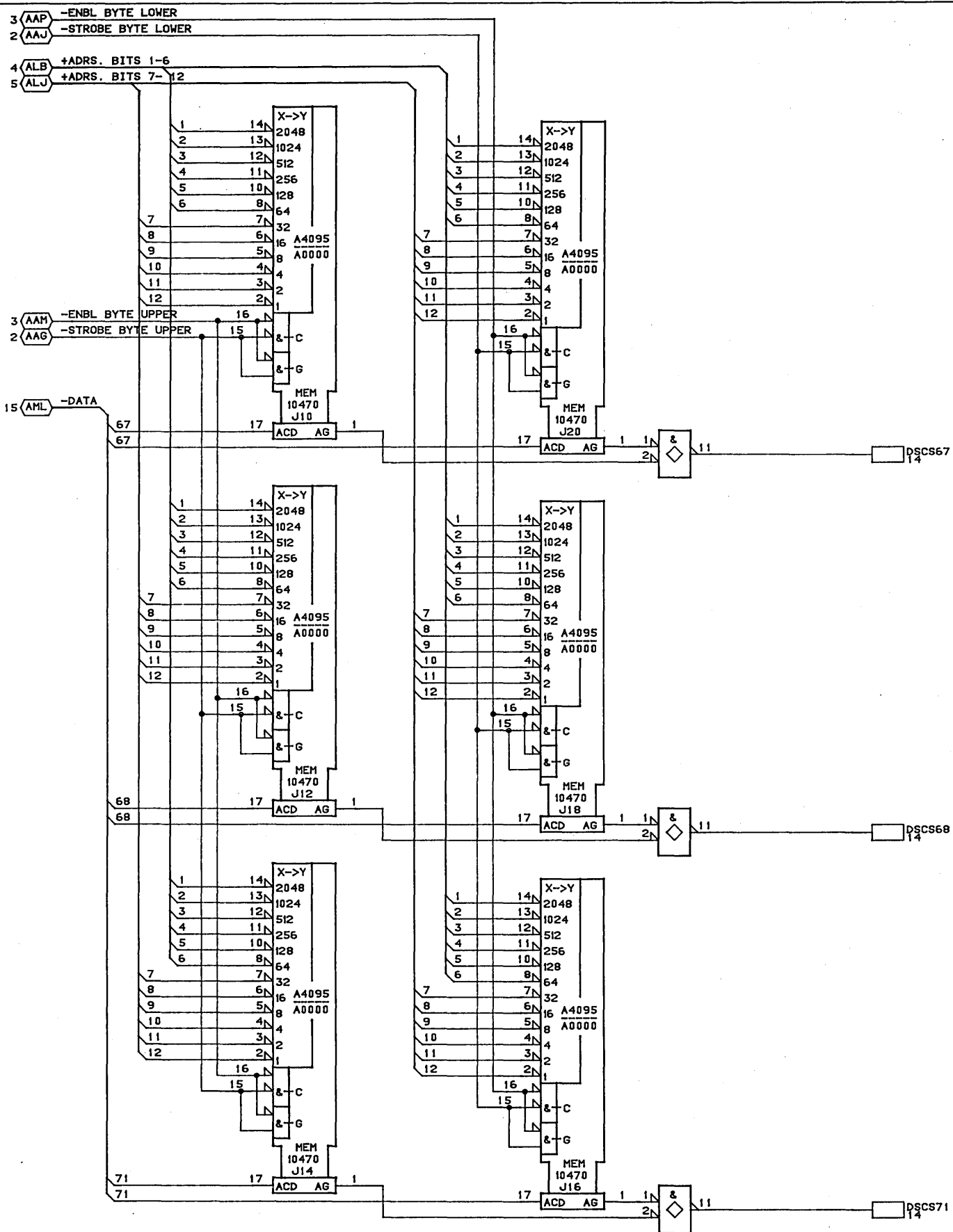
CONTROL  
 DATA  
 CANADA  
 LTD

CONTROL STORE BITS 64-66  
 MODULE ASSY: 210 PAK  
 TYPE: 1DS0

12-APR-85

SHEET 06

B



CONTROL  
DATA  
CANADA  
LTD

CONTROL STORE BITS 67-71  
MODULE ASSY: 210 PAK  
TYPE: 1DS0

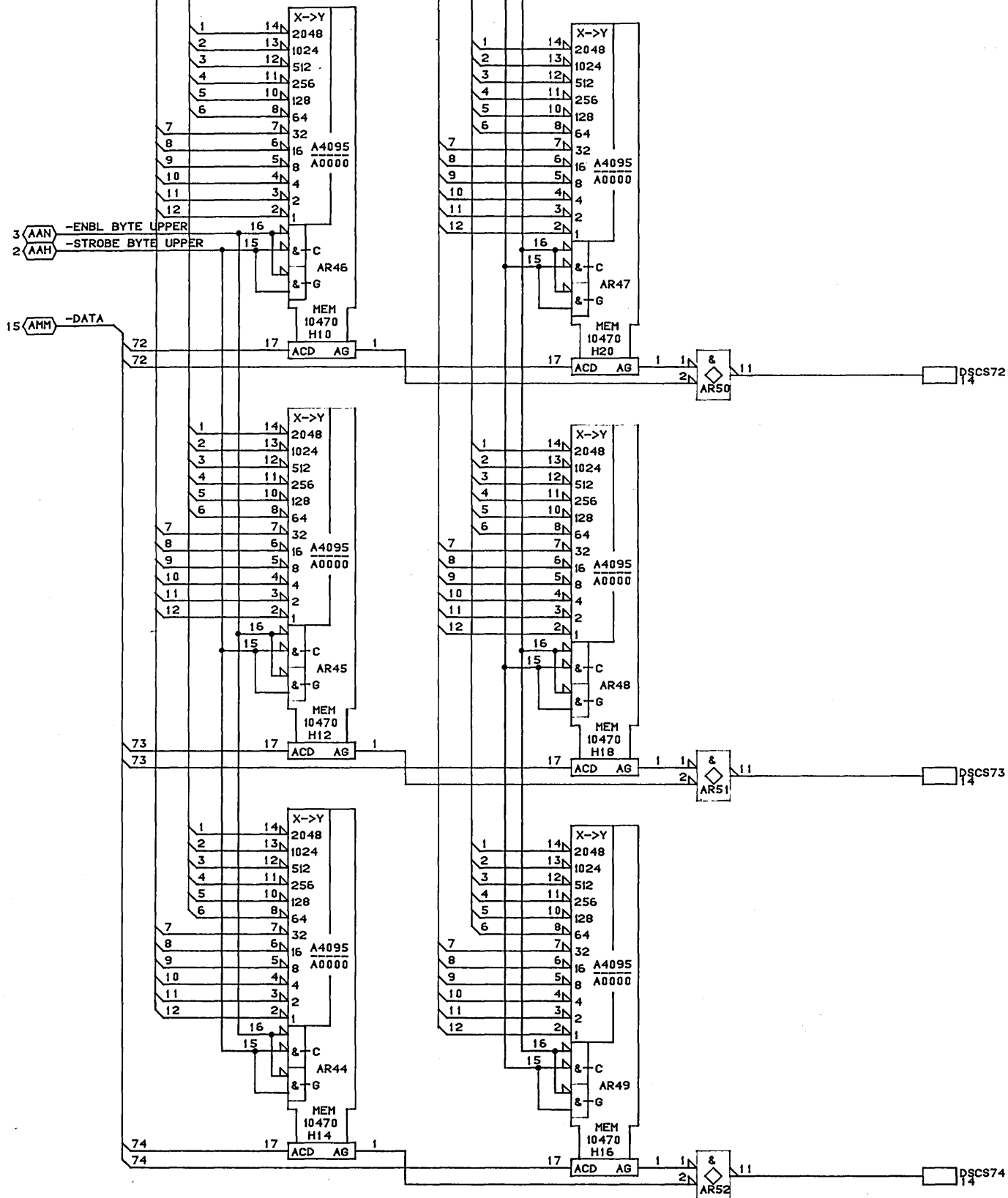
12-APR-85

SHEET 07

B



3 (AAD) -ENBL BYTE LOWER  
 2 (AAK) -STROBE BYTE LOWER  
 4 (ALC) +ADRS. BITS 1-6  
 5 (ALK) +ADRS. BITS 7-12



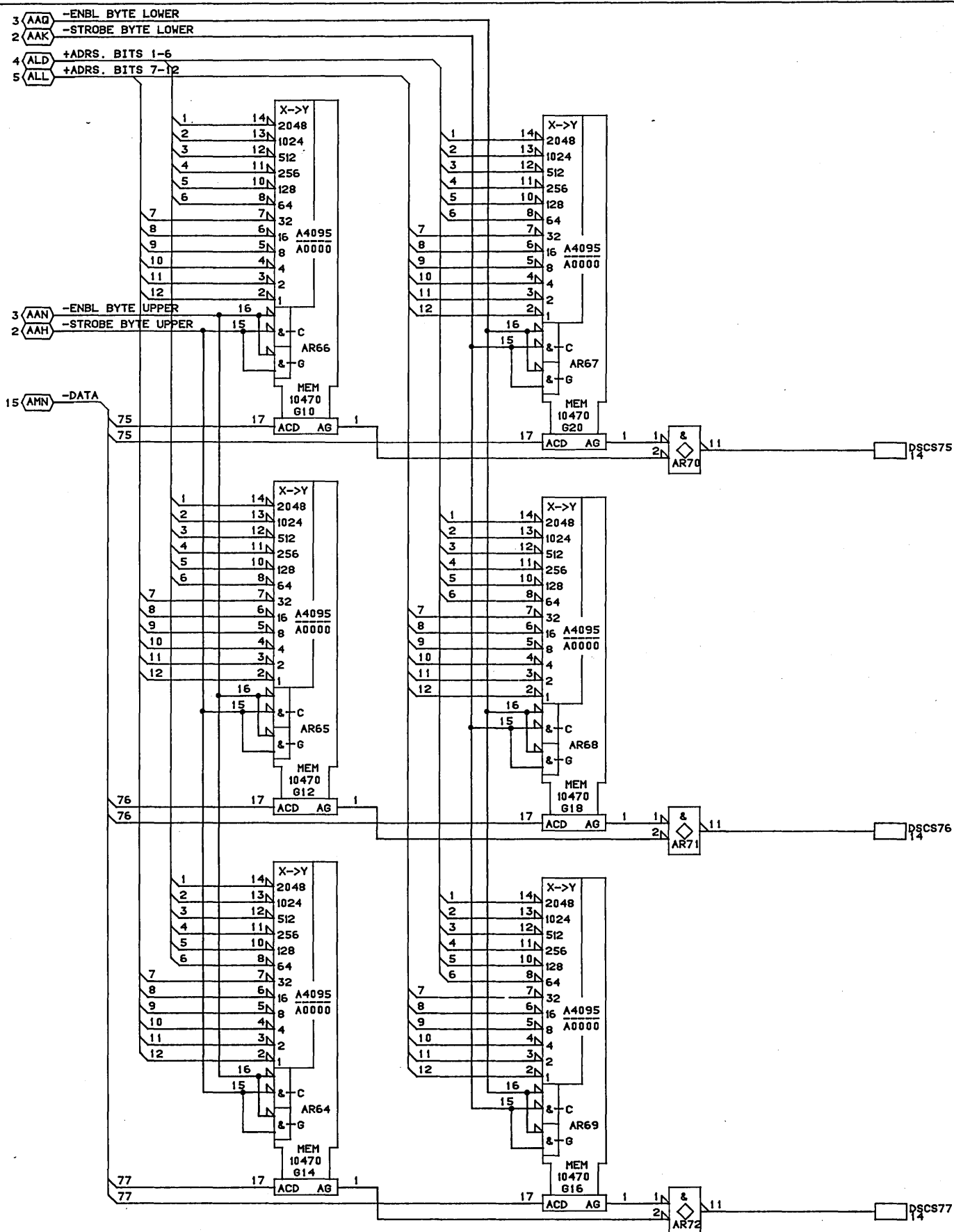
CONTROL  
 DATA  
 CANADA  
 LTD

CONTROL STORE BITS 72-74  
 MODULE ASSY:210 PAK  
 TYPE: 1DS0

01-APR-85

SHEET 08

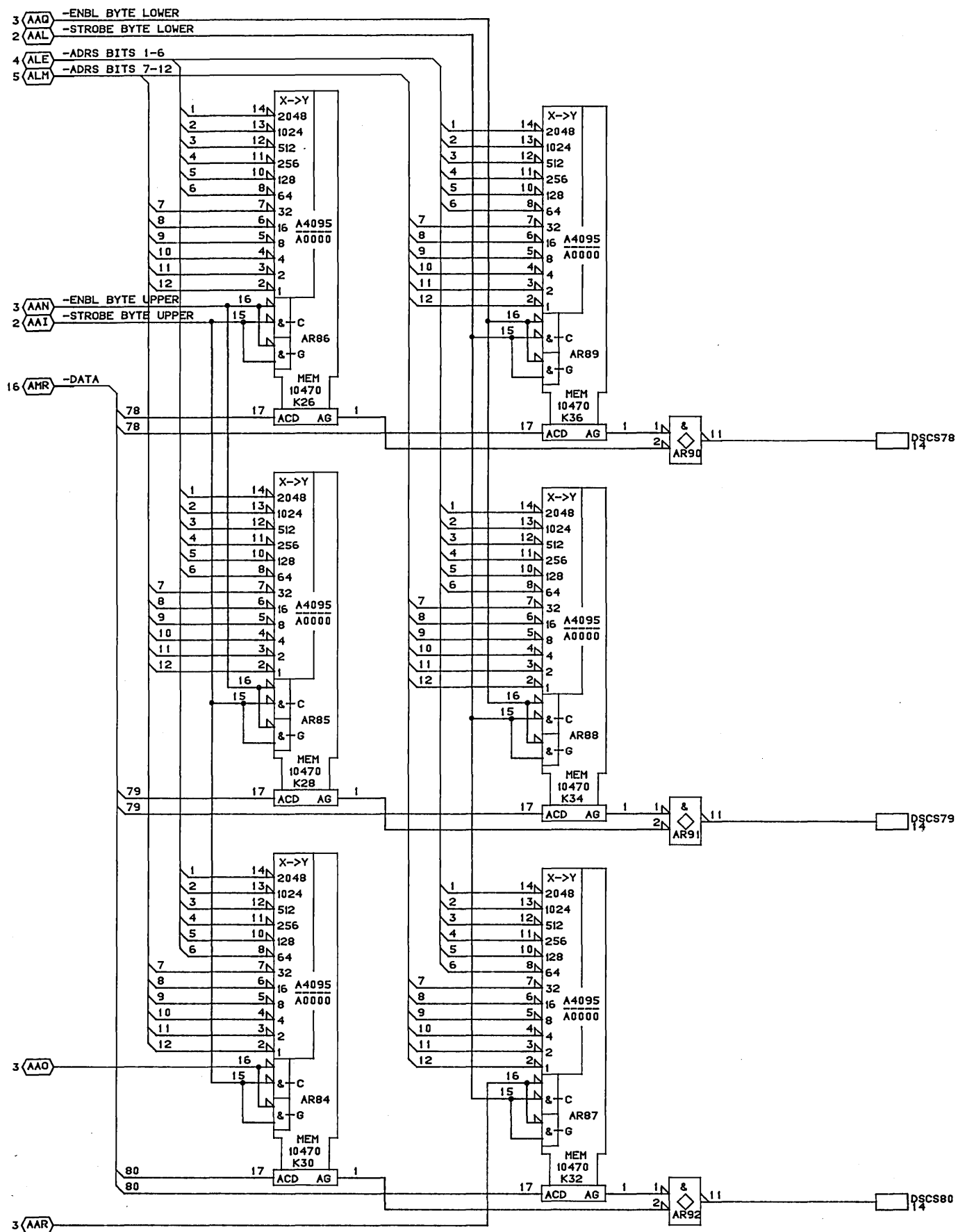
B



CONTROL  
 DATA  
 CANADA  
 LTD

CONTROL STORE BITS 75-77  
 MODULE ASSY:210 PAK  
 TYPE: 1DS0

	C		B
01-APR-85	SHEET 09		



CONTROL  
DATA  
CANADA  
LTD

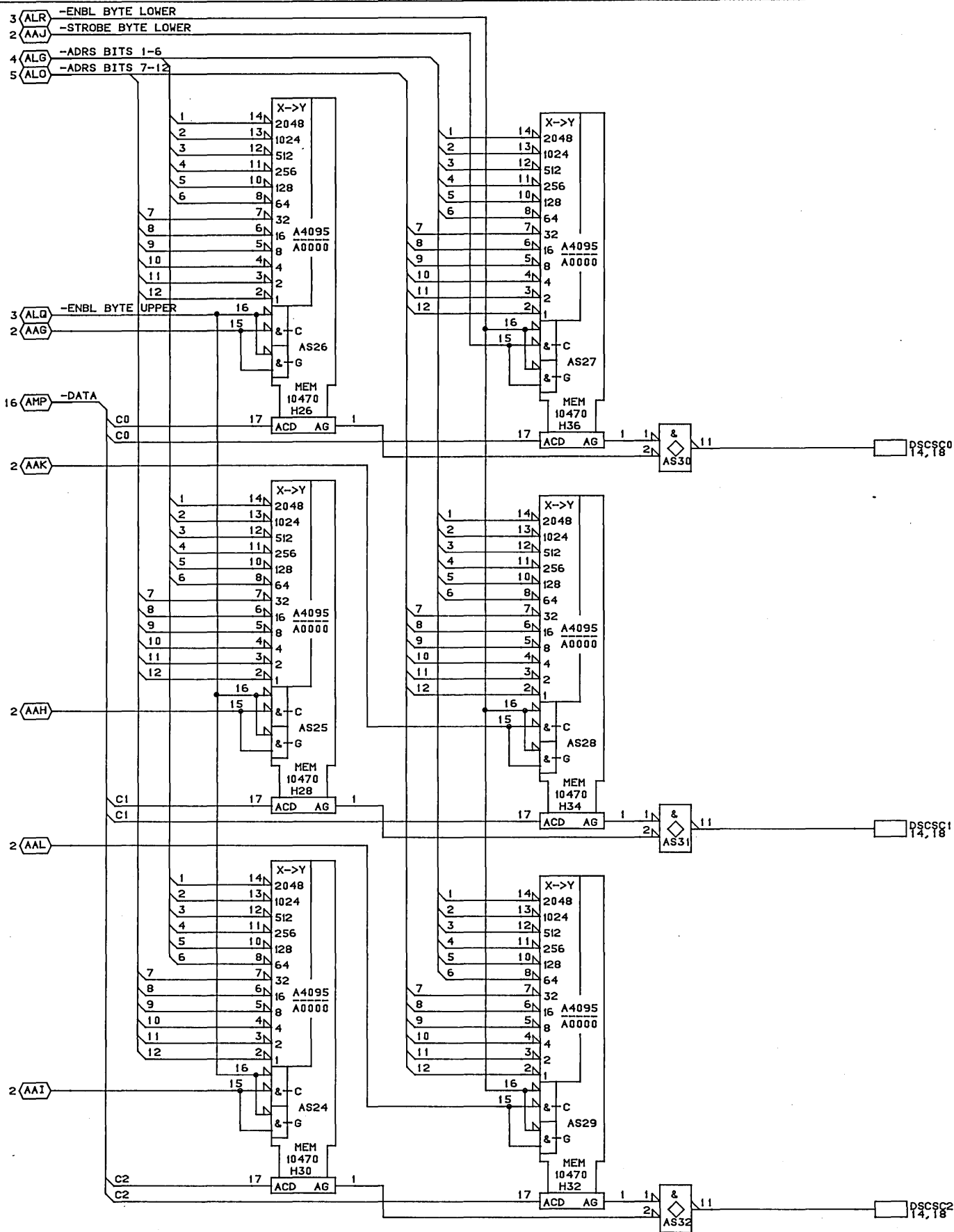
CONTROL STORE BITS 78-80  
MODULE ASSY:210 PAK  
TYPE: 1DS0

01-APR-85

SHEET 10

B





CONTROL  
DATA  
CANADA  
LTD

CONTROL STORE ECC BITS 0-2  
MODULE ASSY:210 PAK  
TYPE: 1DS0

01-APR-85

SHEET 12

B

3 (ALR) -ENBL BYTE LOWER  
2 (AAJ) -STROBE BYTE LOWER

4 (ALH) +ADRS BITS 1-6  
5 (ALP) +ADRS BITS 7-12

3 (ALQ) -ENBL BYTE UPPER  
2 (AAG) -STROBE BYTE UPPER

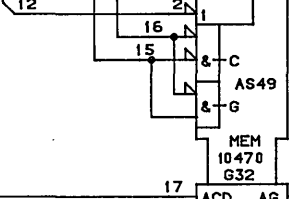
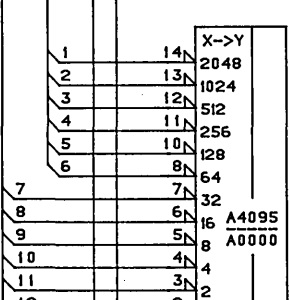
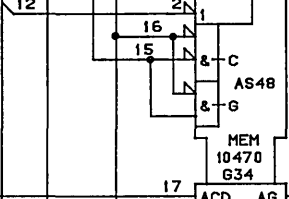
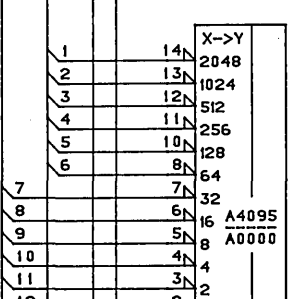
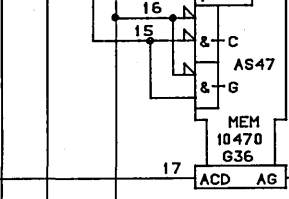
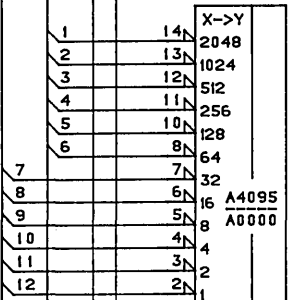
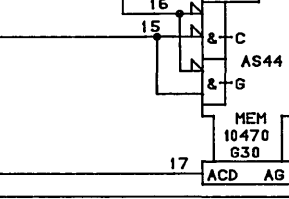
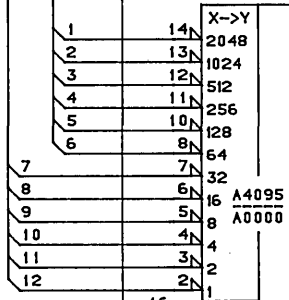
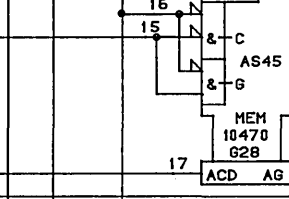
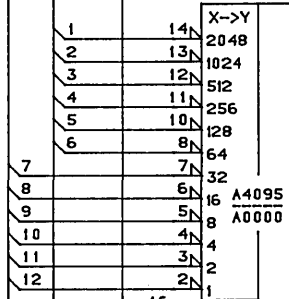
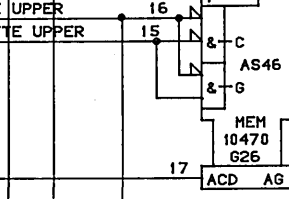
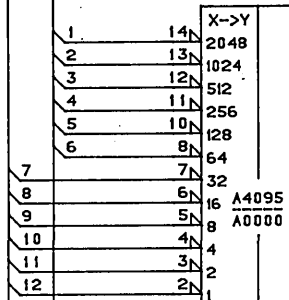
16 (AMO) -DATA

2 (AAK)

2 (AAH)

2 (AAL)

2 (AAI)



ASS2

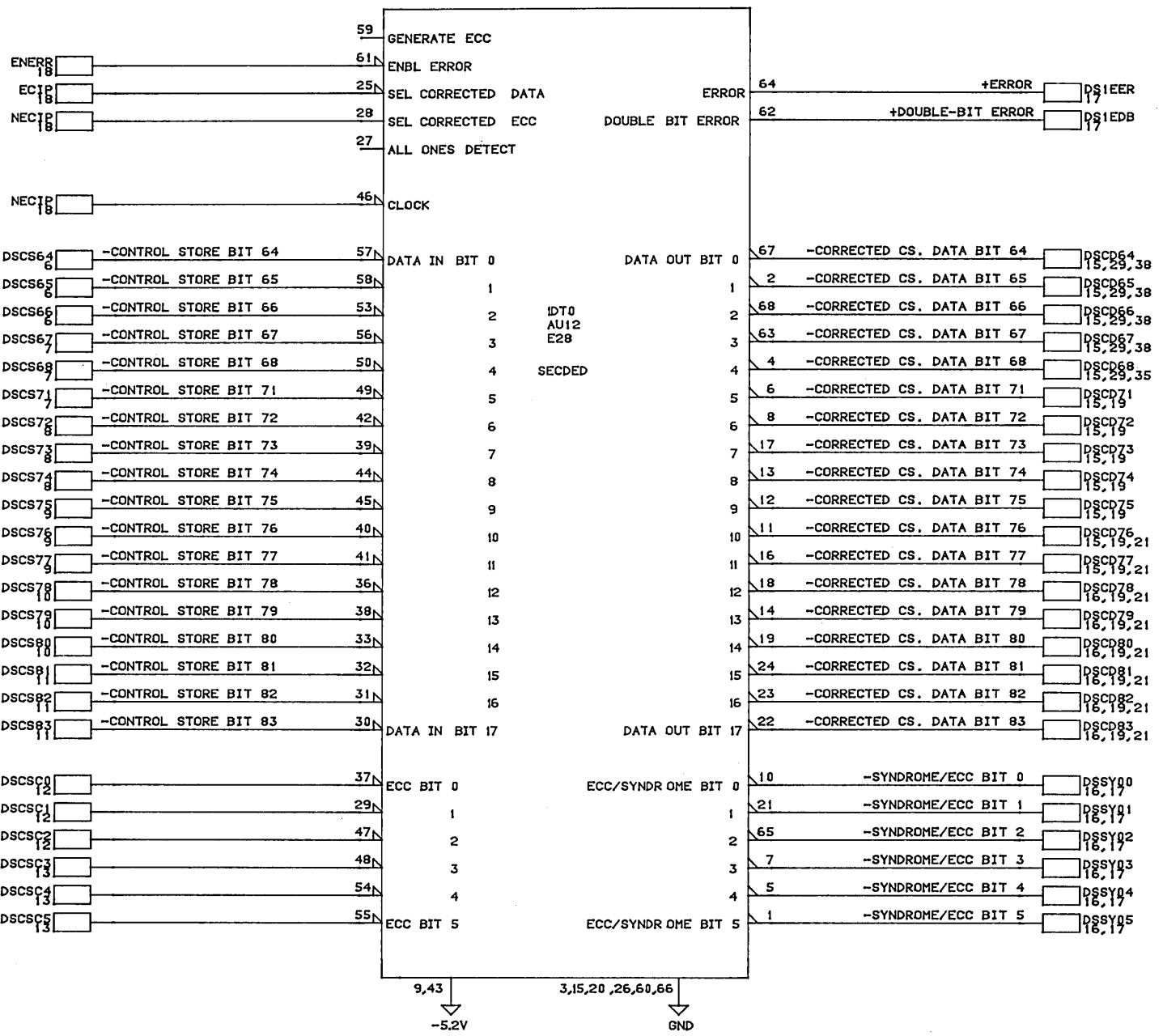
ASS1

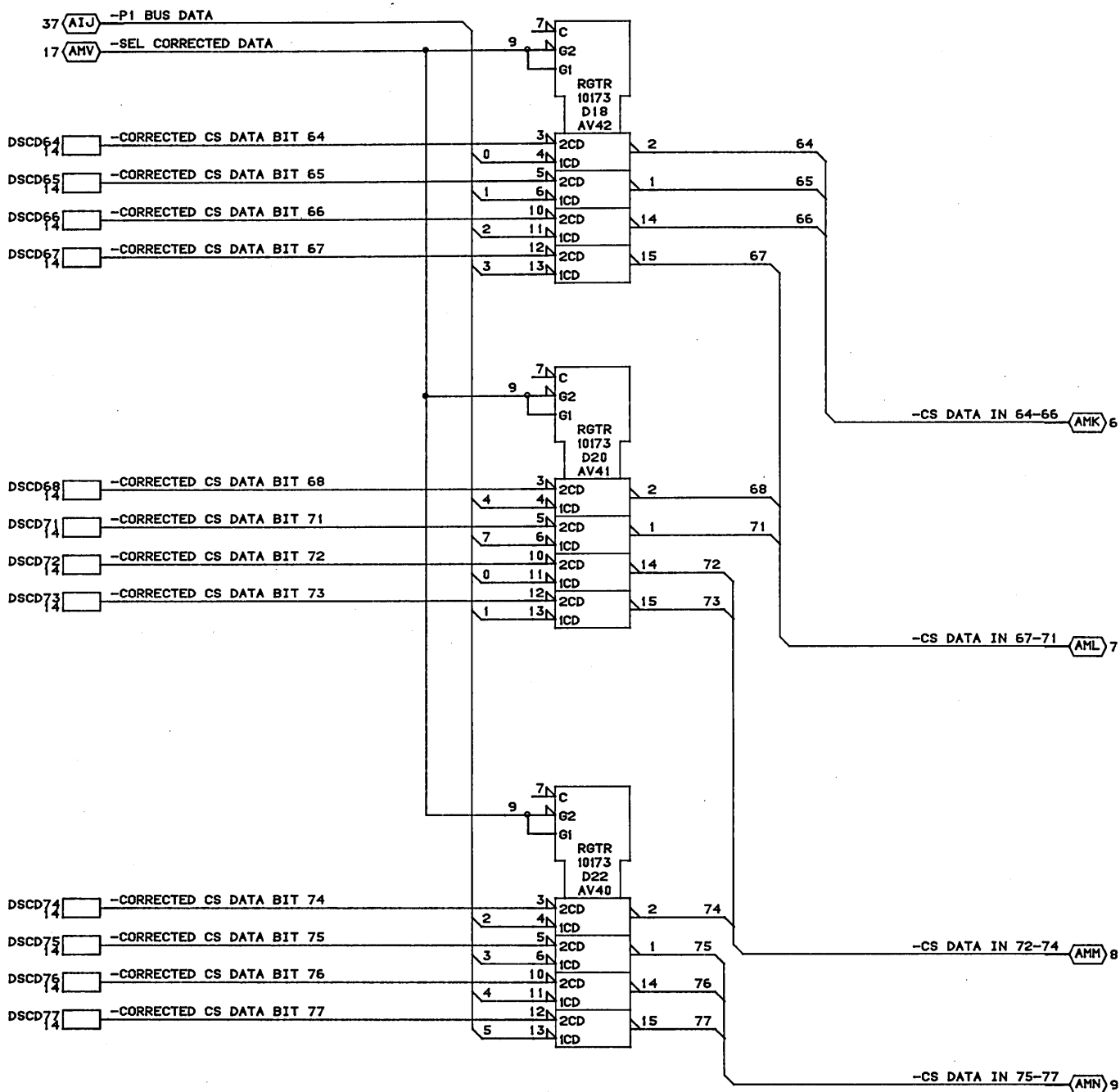
ASS0

DSCSC3  
14,18

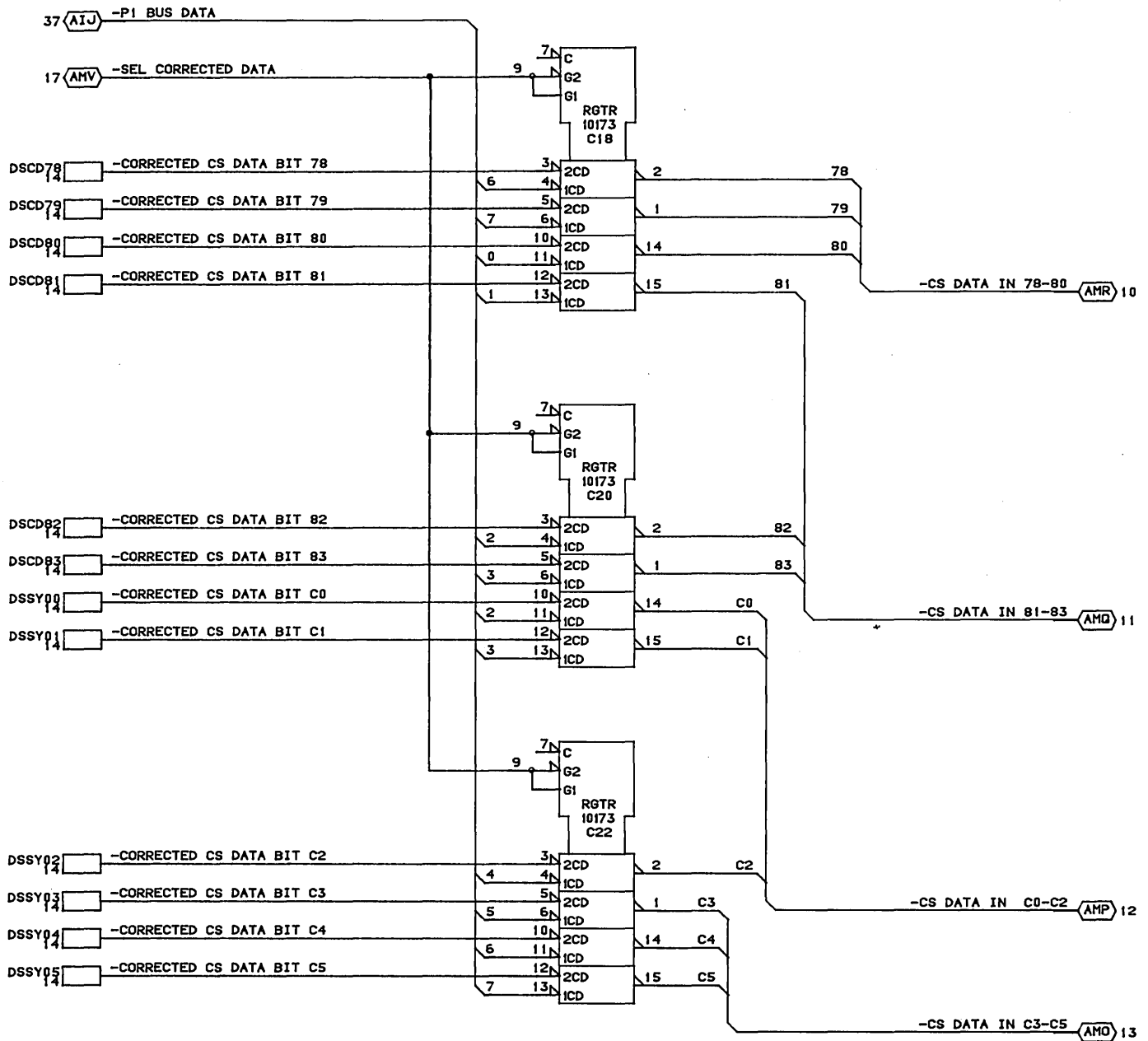
DSCSC4  
14,18

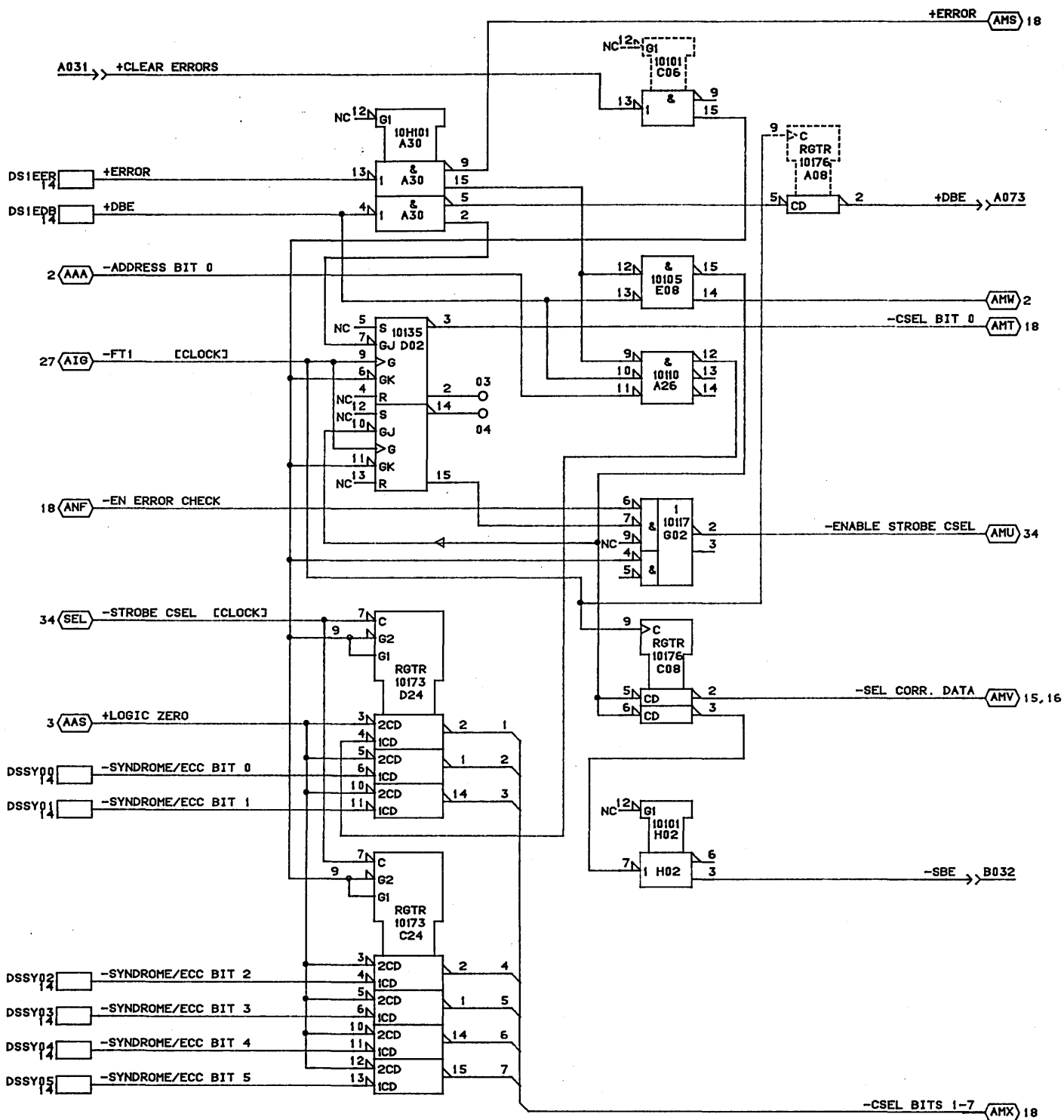
DSCSC5  
14,18

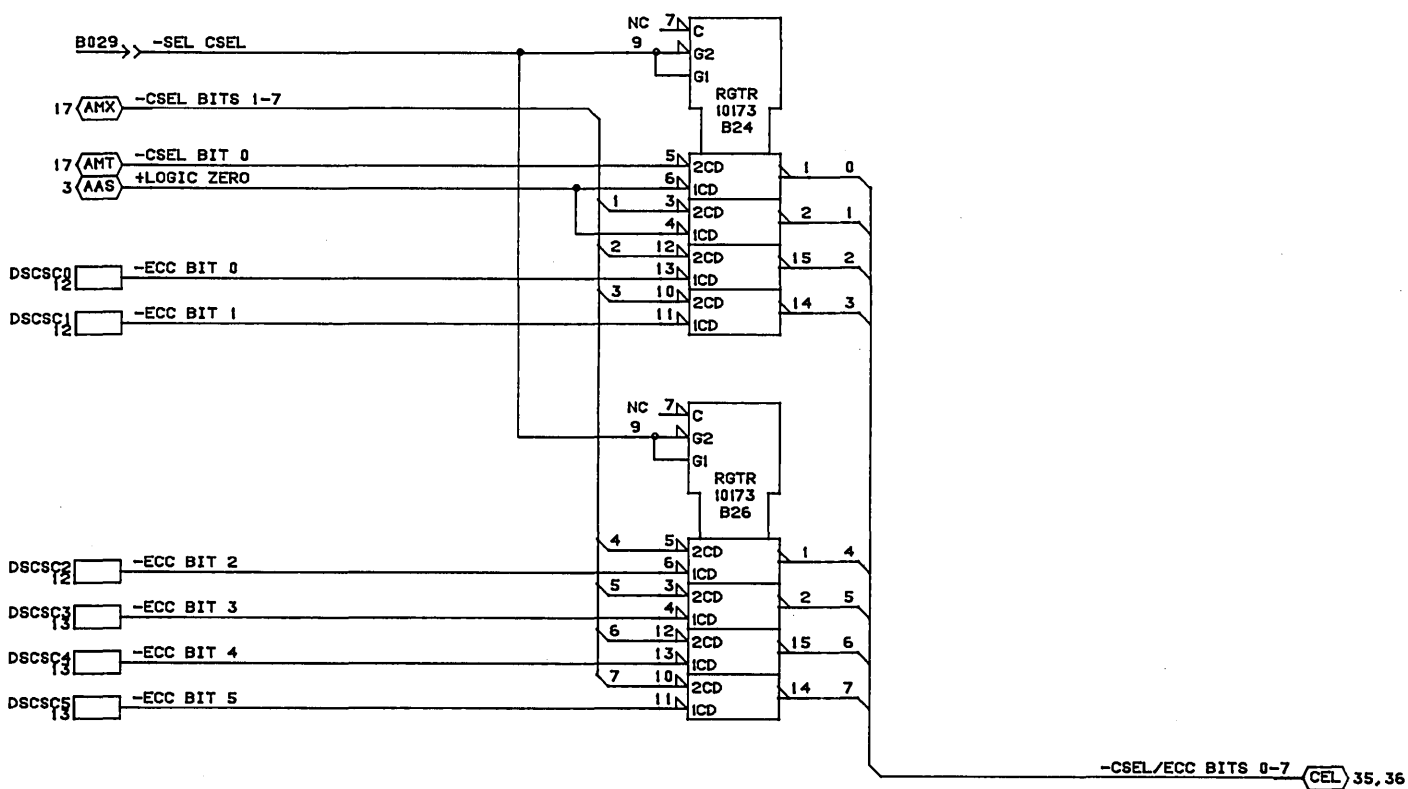
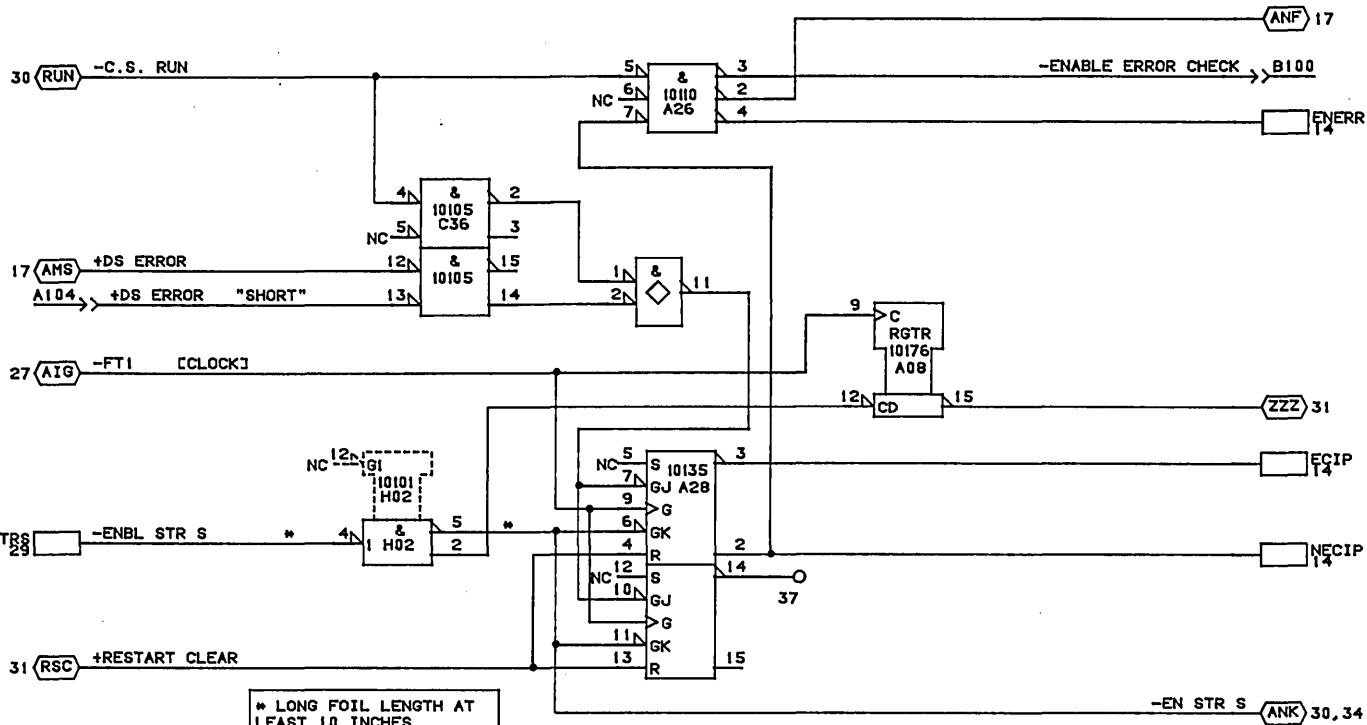


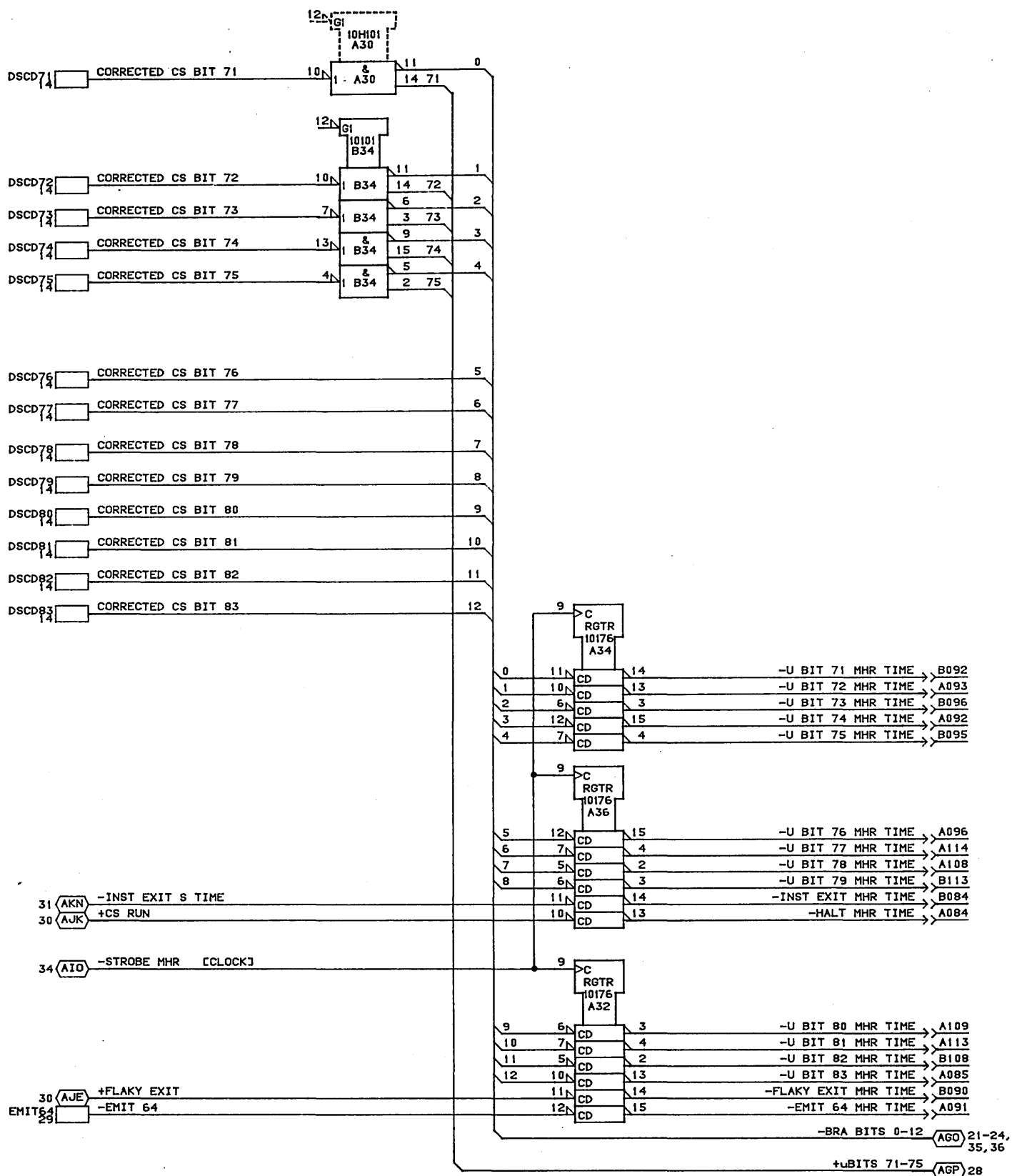








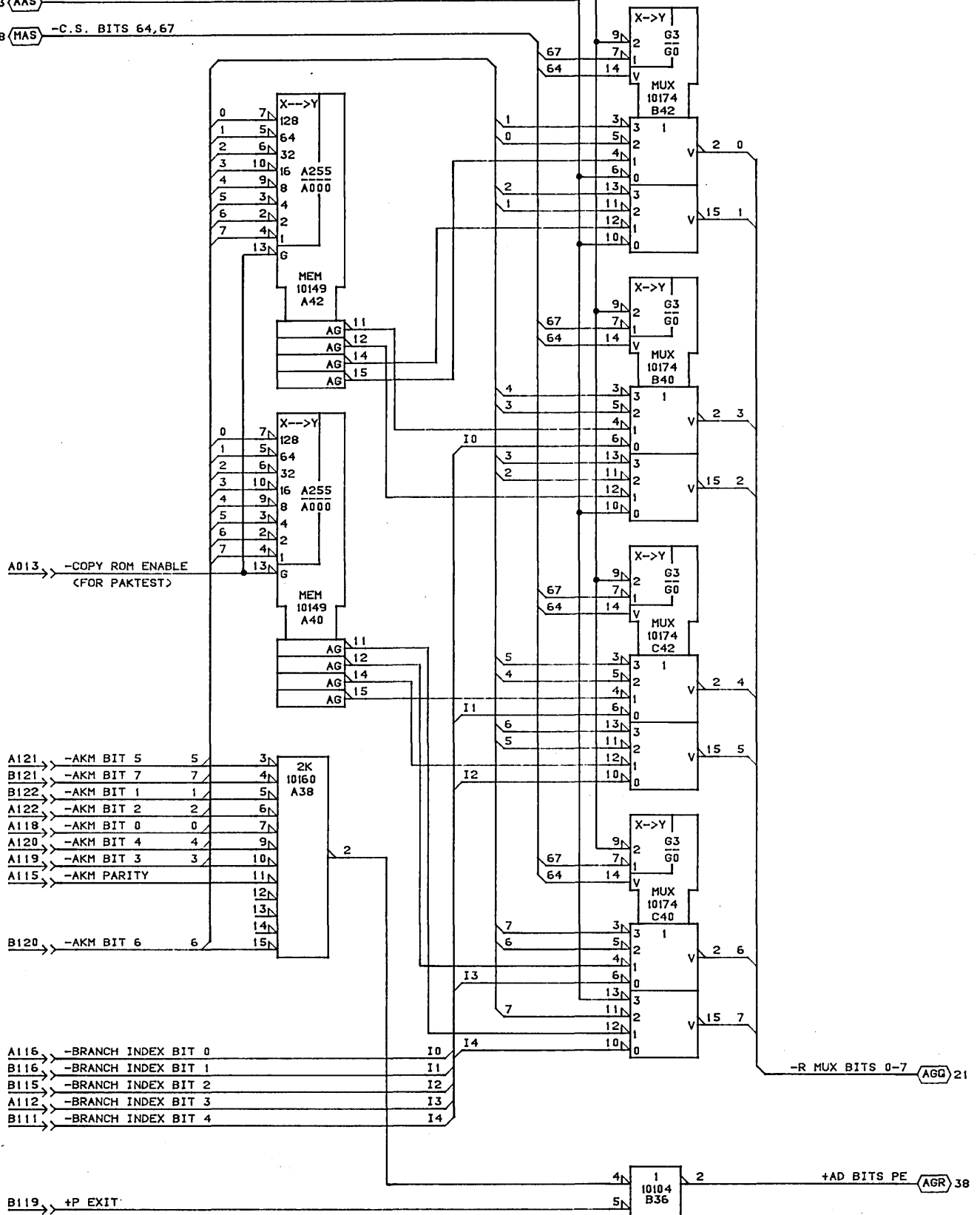




38 ALS -R MUX SEL BIT 1

3 AAS +LOGIC "0"

38 MAS -C.S. BITS 64,67



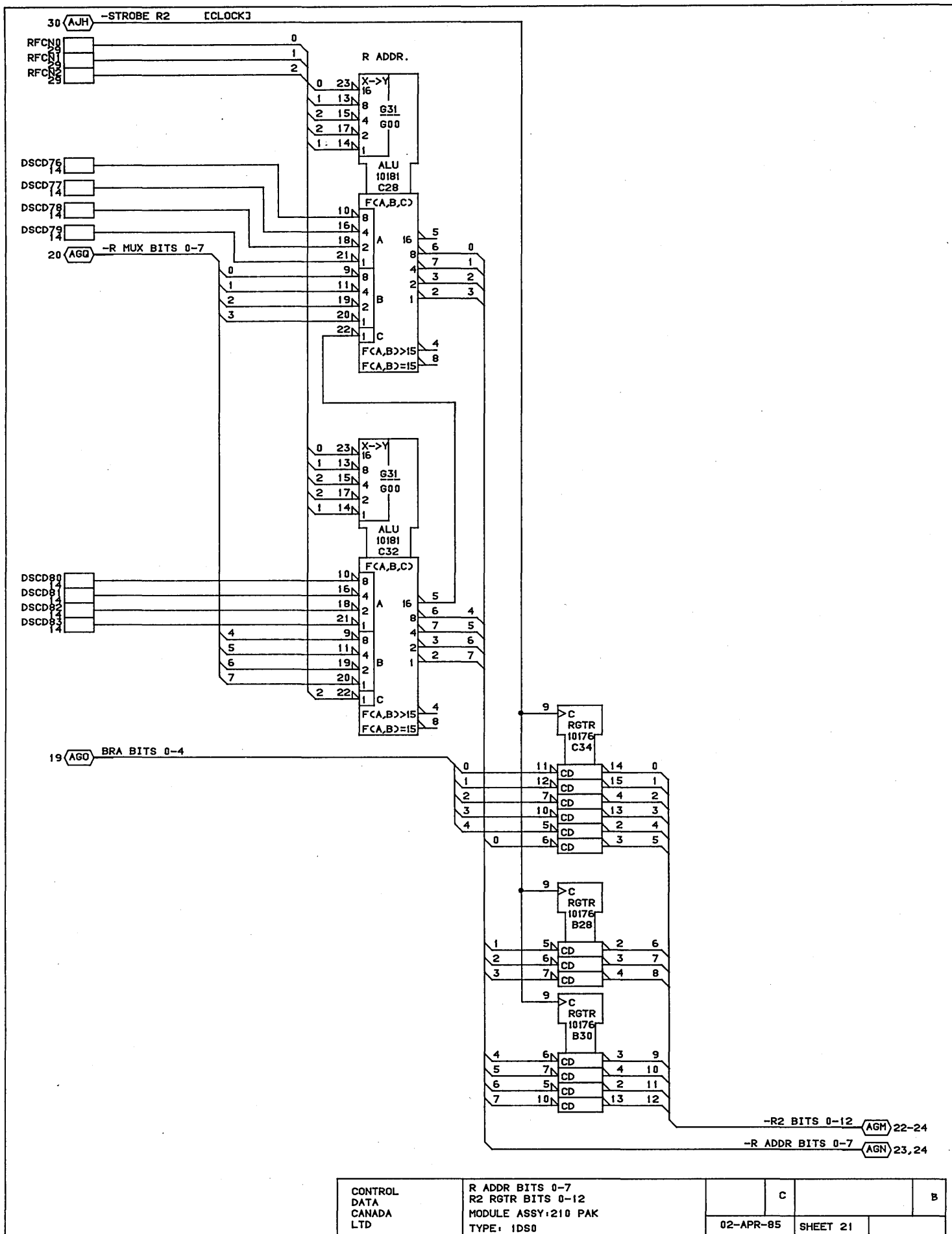
CONTROL  
DATA  
CANADA  
LTD

COPY ROM  
R - MUX  
MODULE ASSY:210 PAK  
TYPE: 1DS0

02-APR-85

SHEET 20

B



CONTROL DATA CANADA LTD	R ADDR BITS 0-7 R2 RGTR BITS 0-12 MODULE ASSY: 210 PAK TYPE: 1DS0	C		B
		02-APR-85	SHEET 21	

31 AGX -S MUX SEL BITS 0-2

37 AIJ -P1 BUS DATA

2 AAA -ADDR. BIT 0

21 AGM -R2 BITS 0-3

3 AAS +LOGIC "0"

26 AIX -R1 BITS 0-3

19 AGO -BRA BITS 0-3

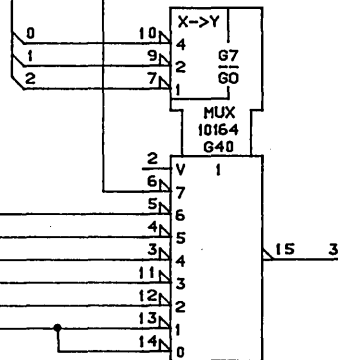
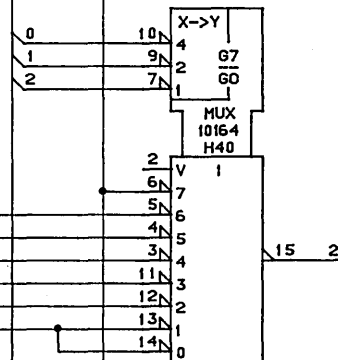
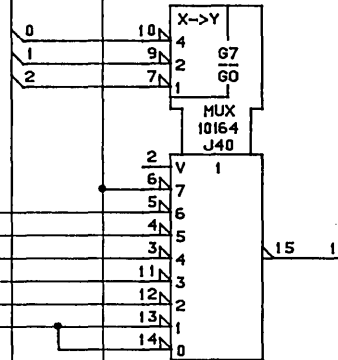
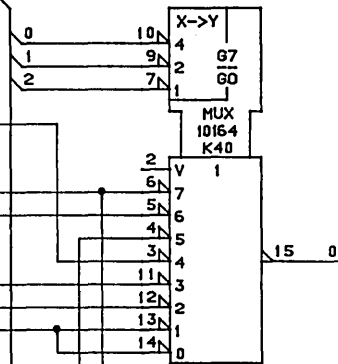


25 AIW -S REG BITS 1-3

A081 -CHSA BIT 0

B081 -CHSA BIT 1

A082 -CHSA BIT 2



-S DATA BITS 0-3 AIB 25,26

CONTROL  
DATA  
CANADA  
LTD

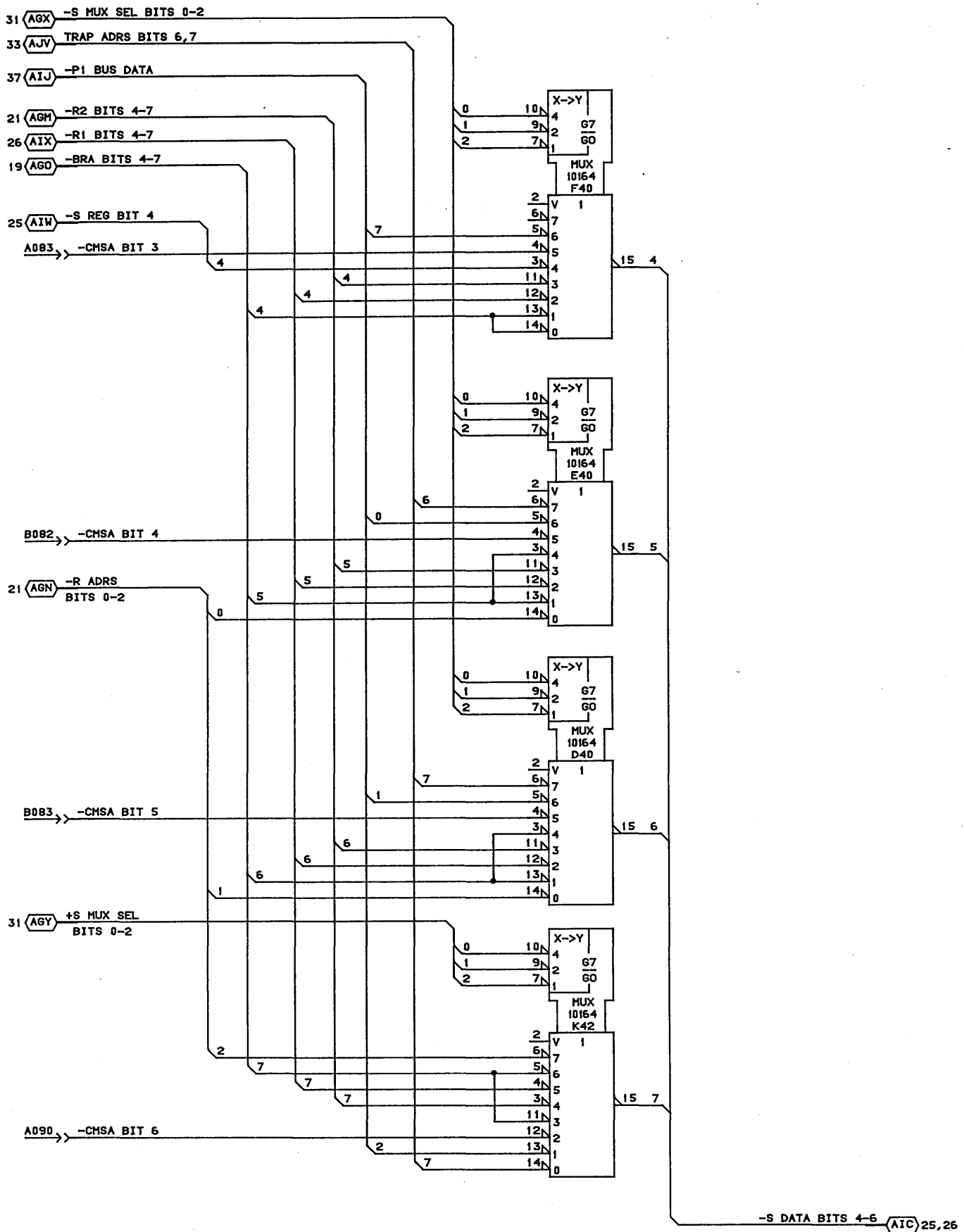
S - MUX BITS 0-3  
MODULE ASSY:210 PAK  
TYPE: 1DS0

C

B

02-APR-85

SHEET 22



CONTROL  
DATA  
CANADA  
LTD

-S MUX BITS 4-7  
MODULE ASSY:210 APK  
TYPE: 1DS0

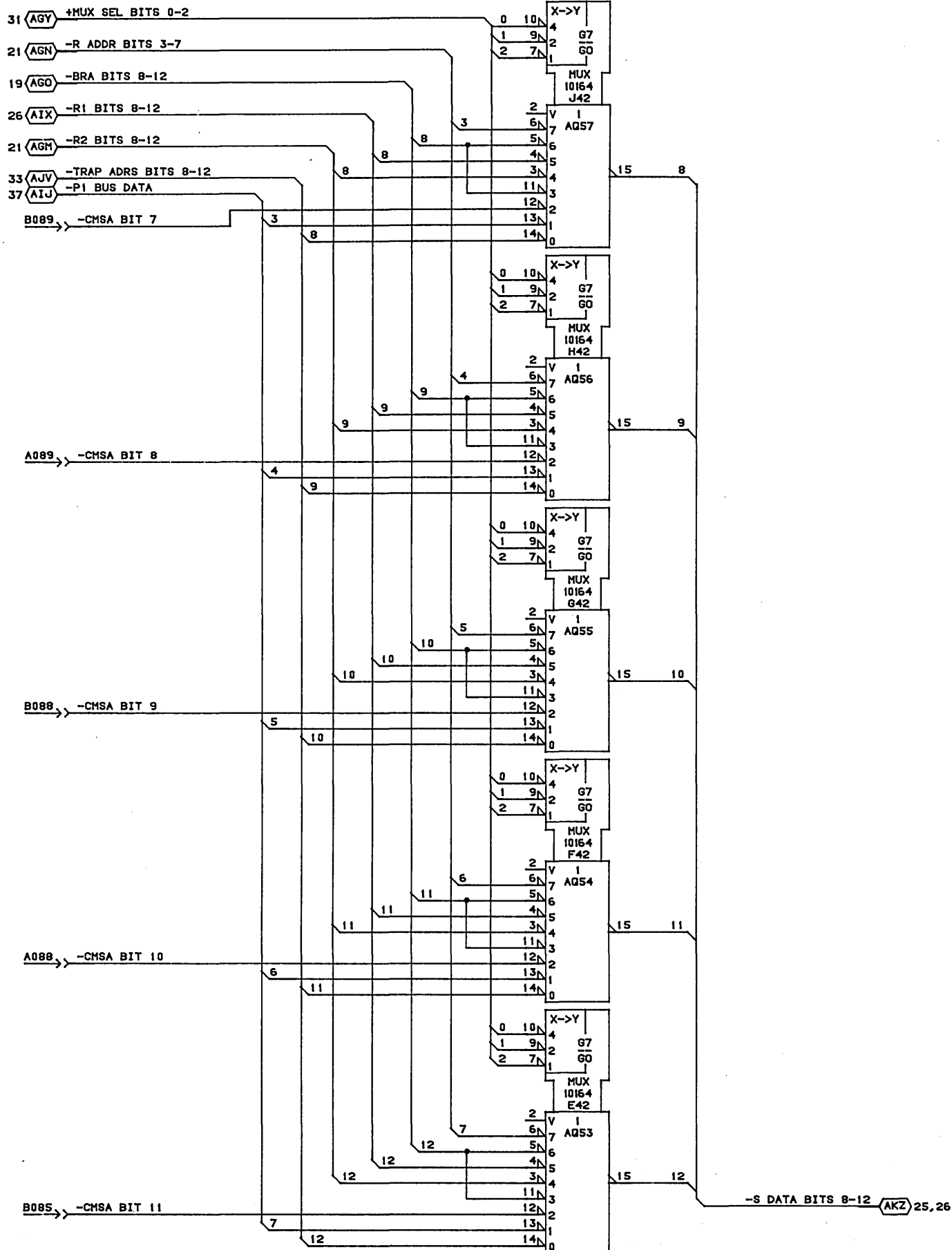
C

B

02-APR-85

SHEET 23





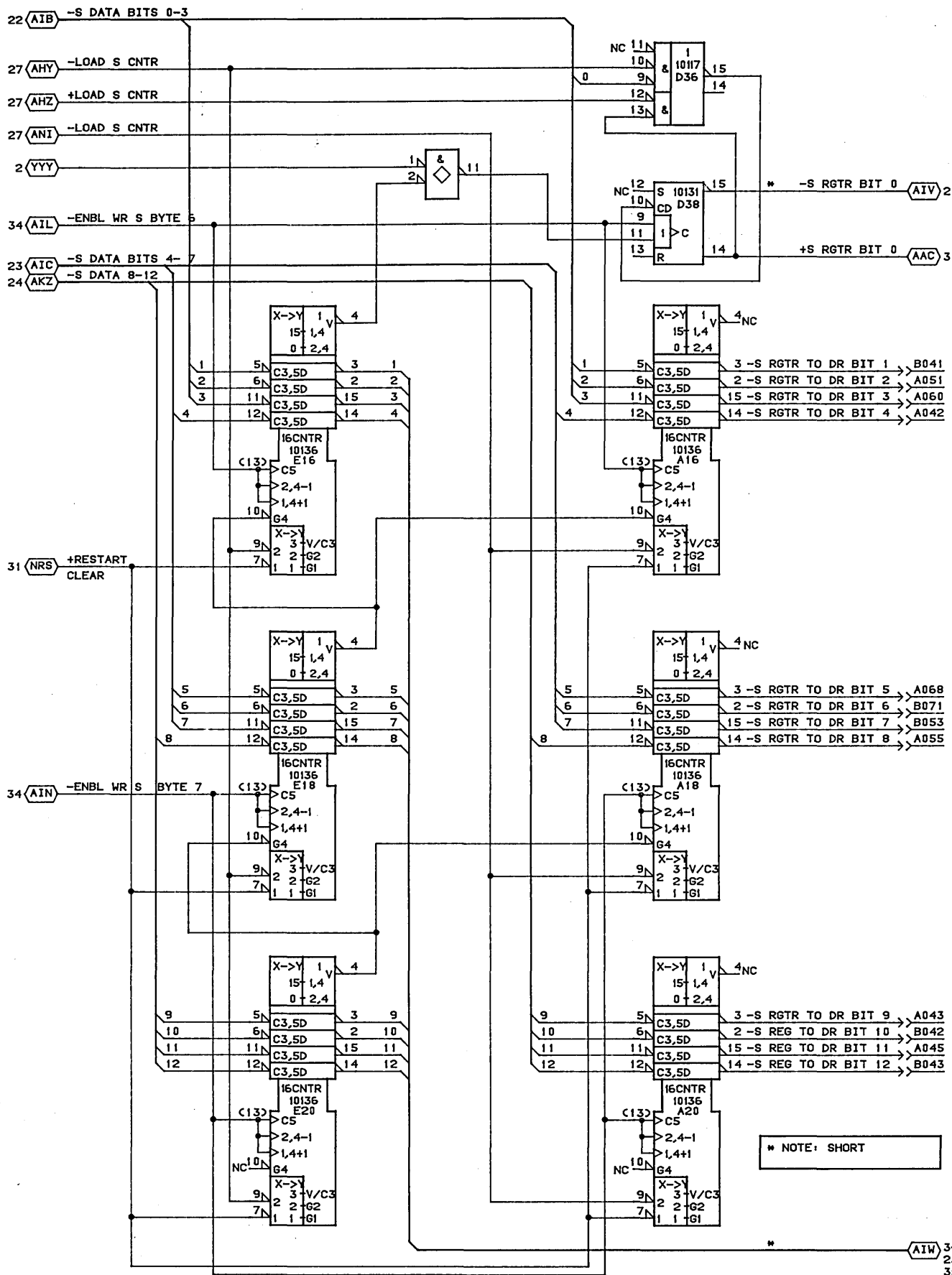
CONTROL  
DATA  
CANADA  
LTD

S - MUX BITS 8-12  
MODULE ASSY: 210 PAK  
TYPE: IDS0

16-APR-85

SHEET 24

6



CONTROL  
DATA  
CANADA  
LTD

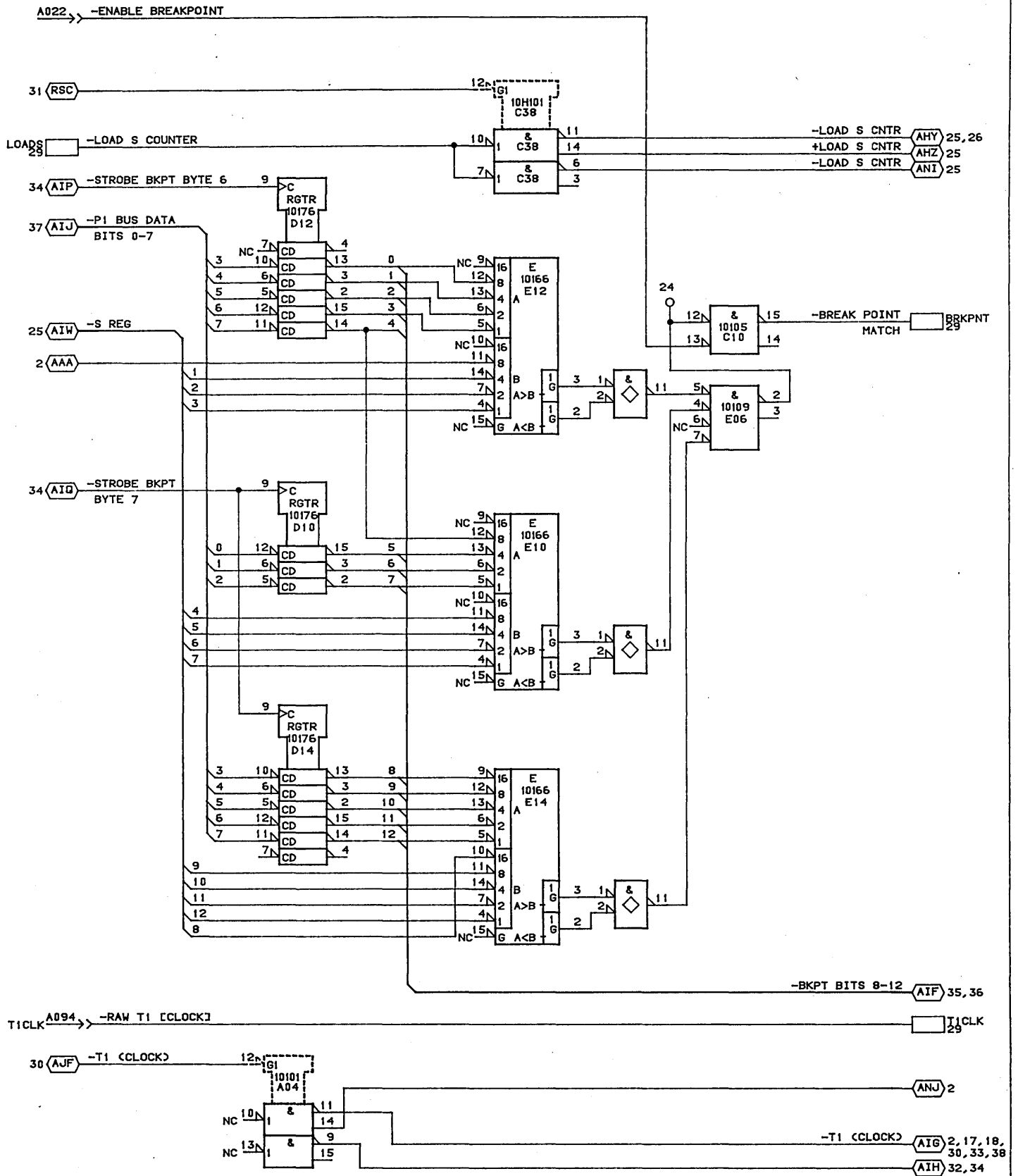
S REGISTER  
MODULE ASSY: 210 PAK  
TYPE: 1DS0

12-APR-85

SHEET 25

B

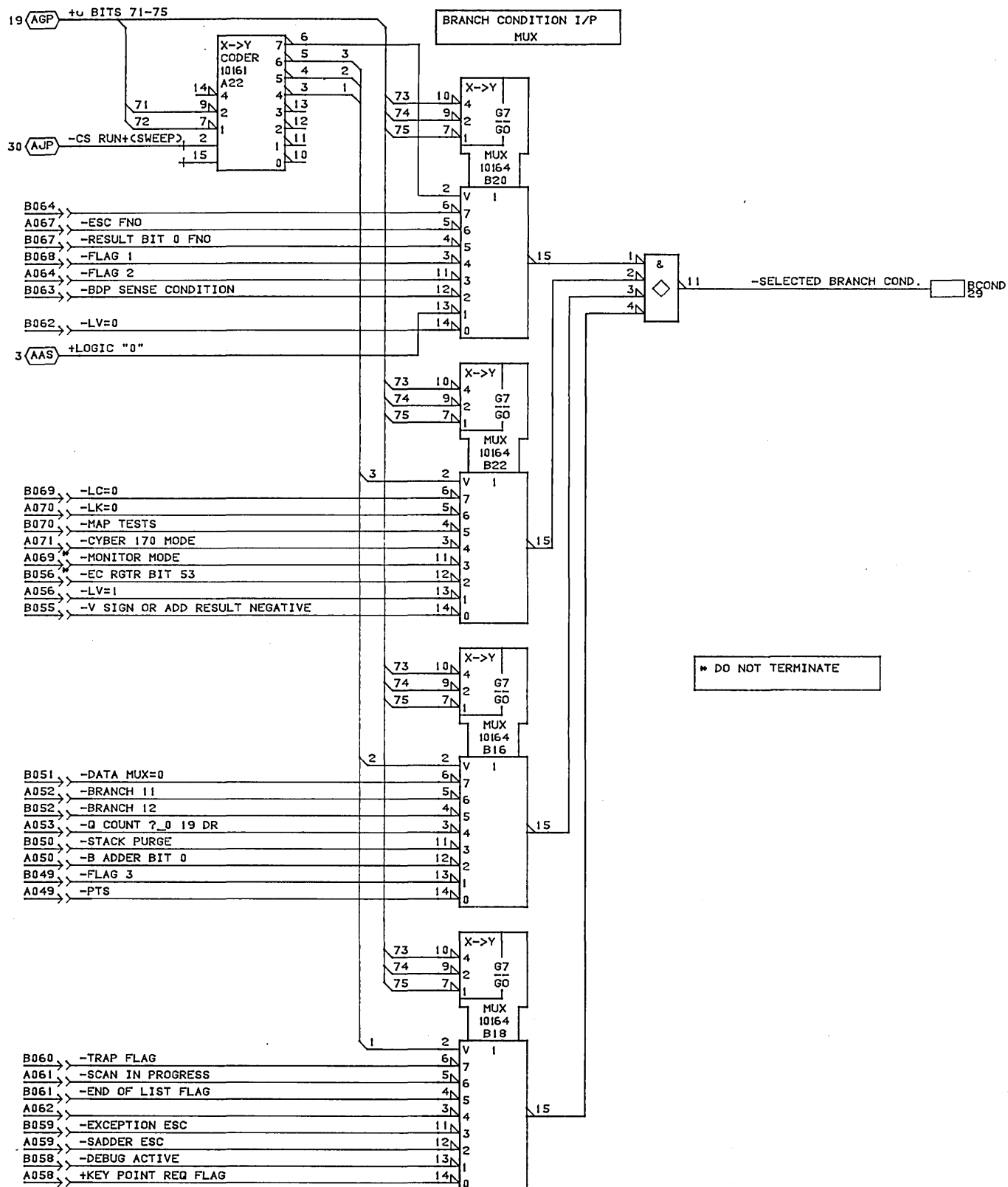




CONTROL  
DATA  
CANADA  
LTD

BREAK POINT COMPARE  
MODULE ASSY: 210 PAK  
TYPE: 1DS0

	C		B
12-APR-85	SHEET 27		



CONTROL  
DATA  
CANADA  
LTD

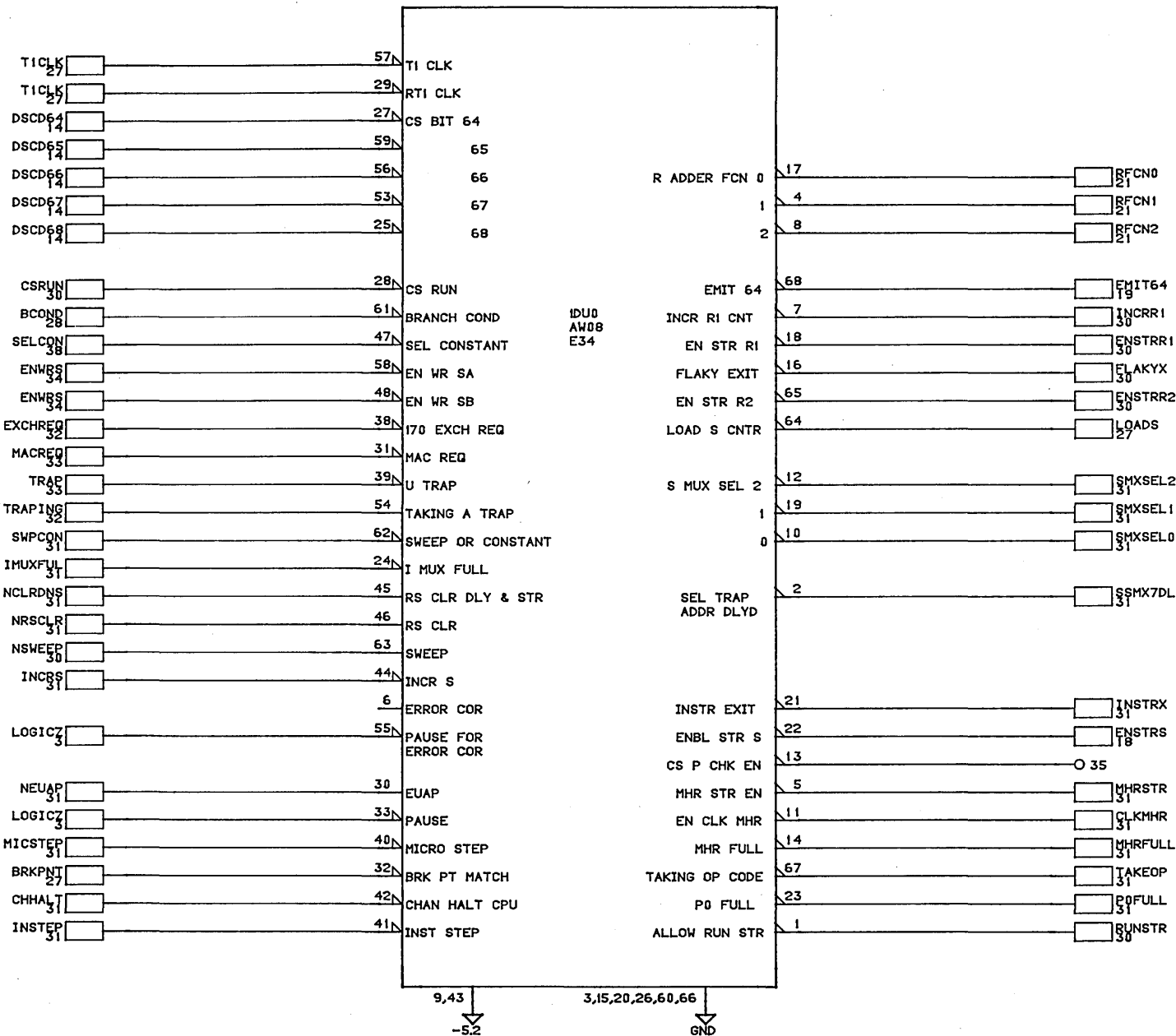
BRANCH CONDITION MUX  
MODULE ASSY: 210 PAK  
TYPE: 1DS0

C

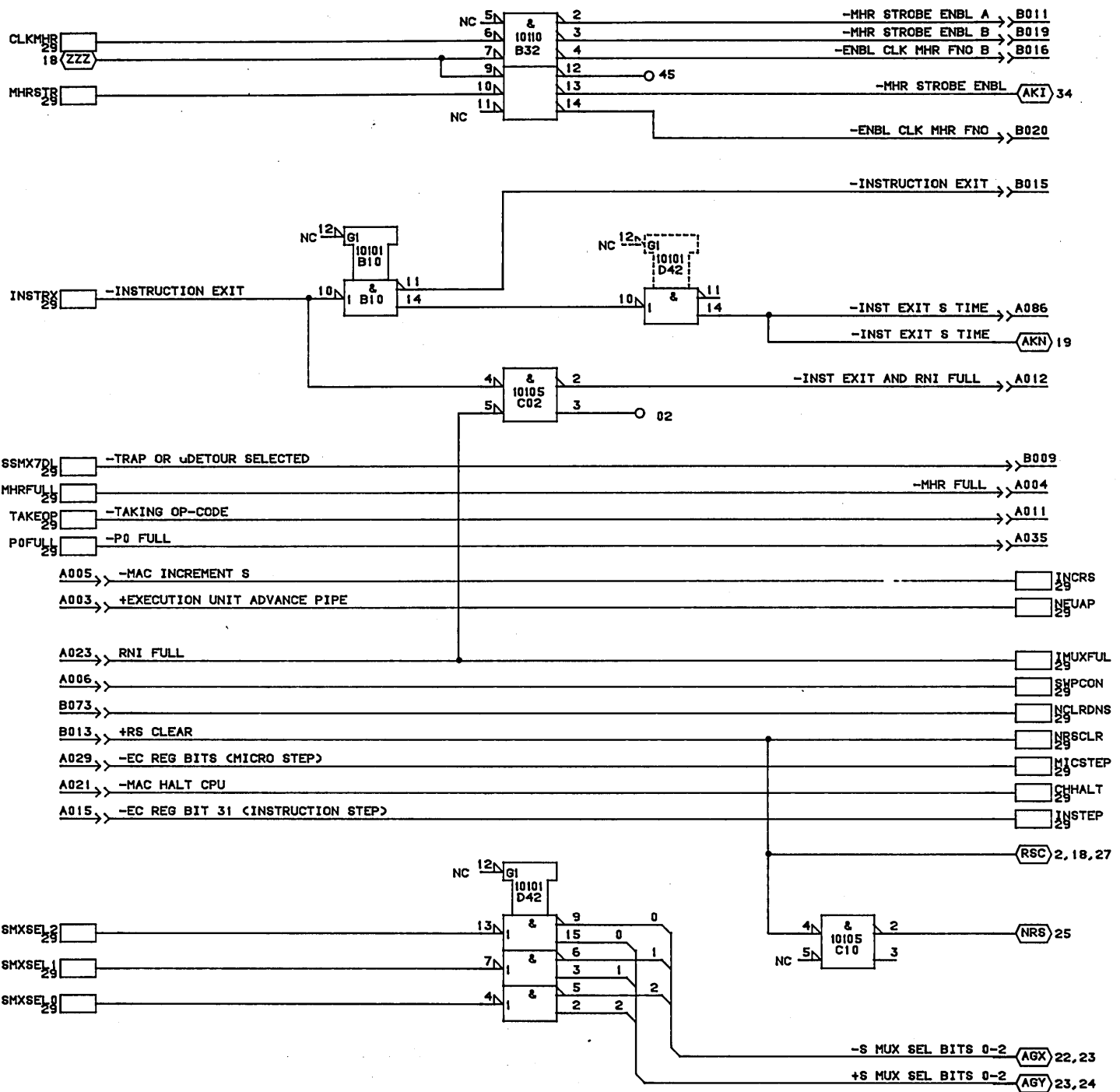
18-APR-85

SHEET 28

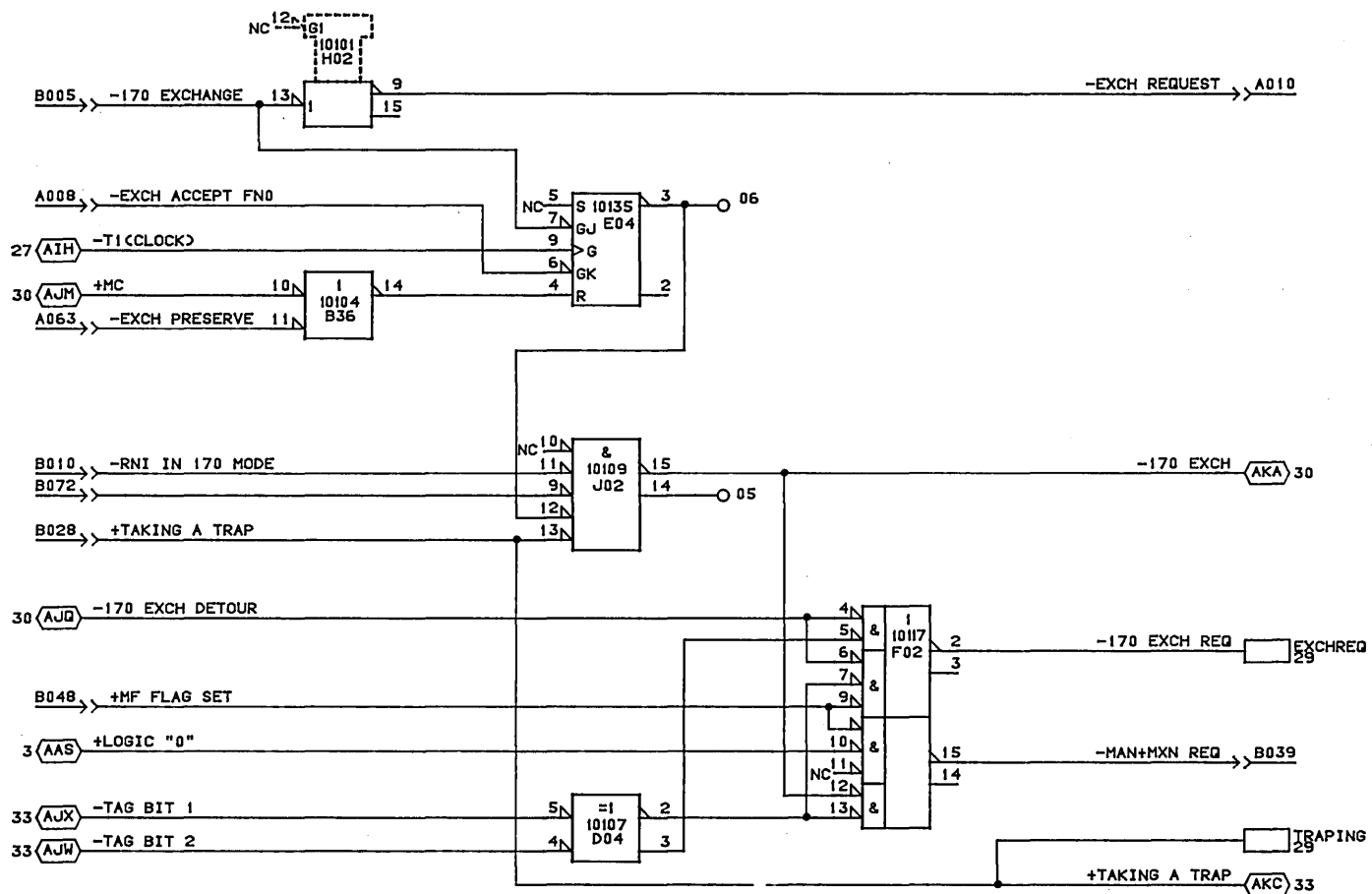
B

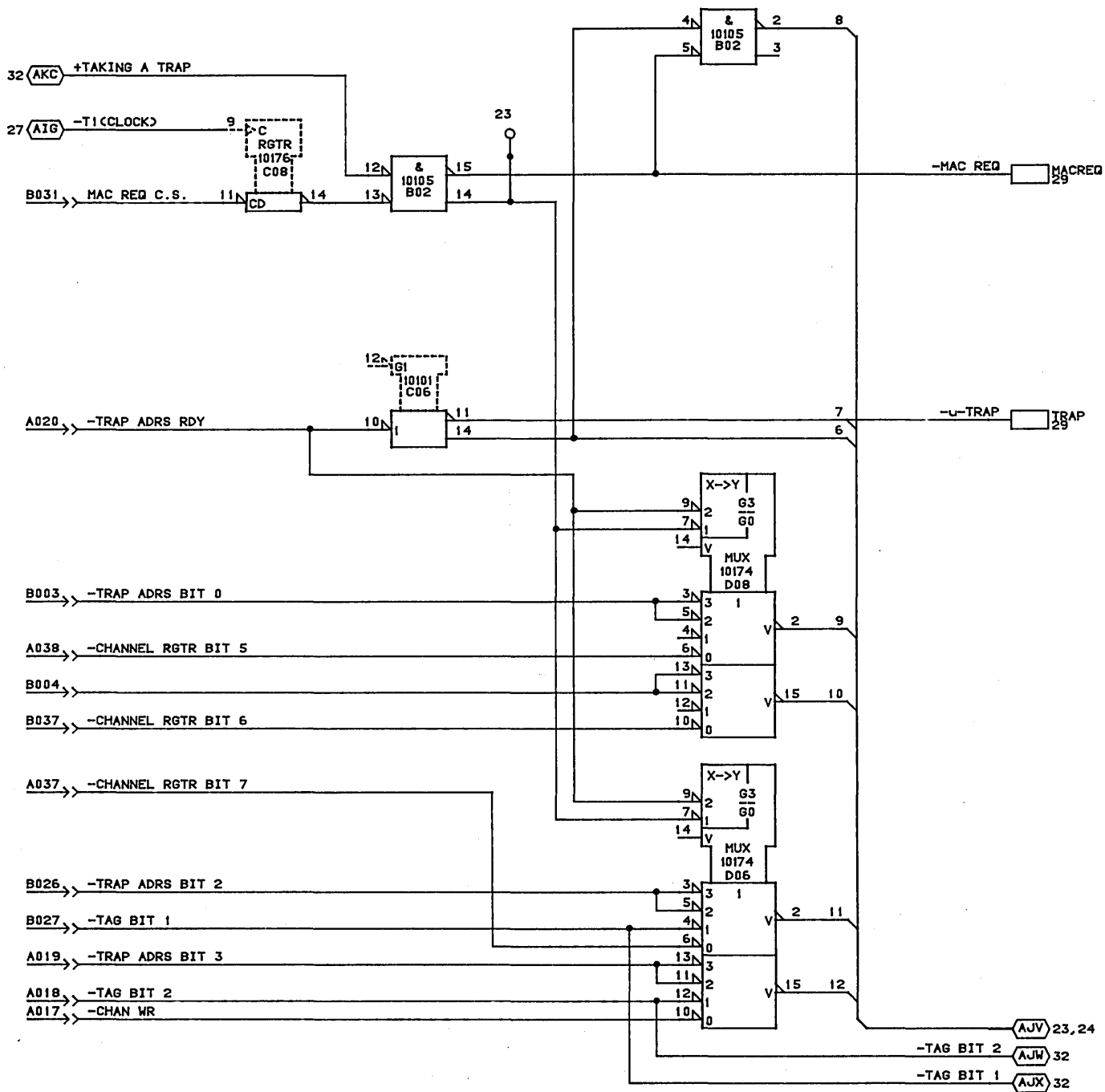




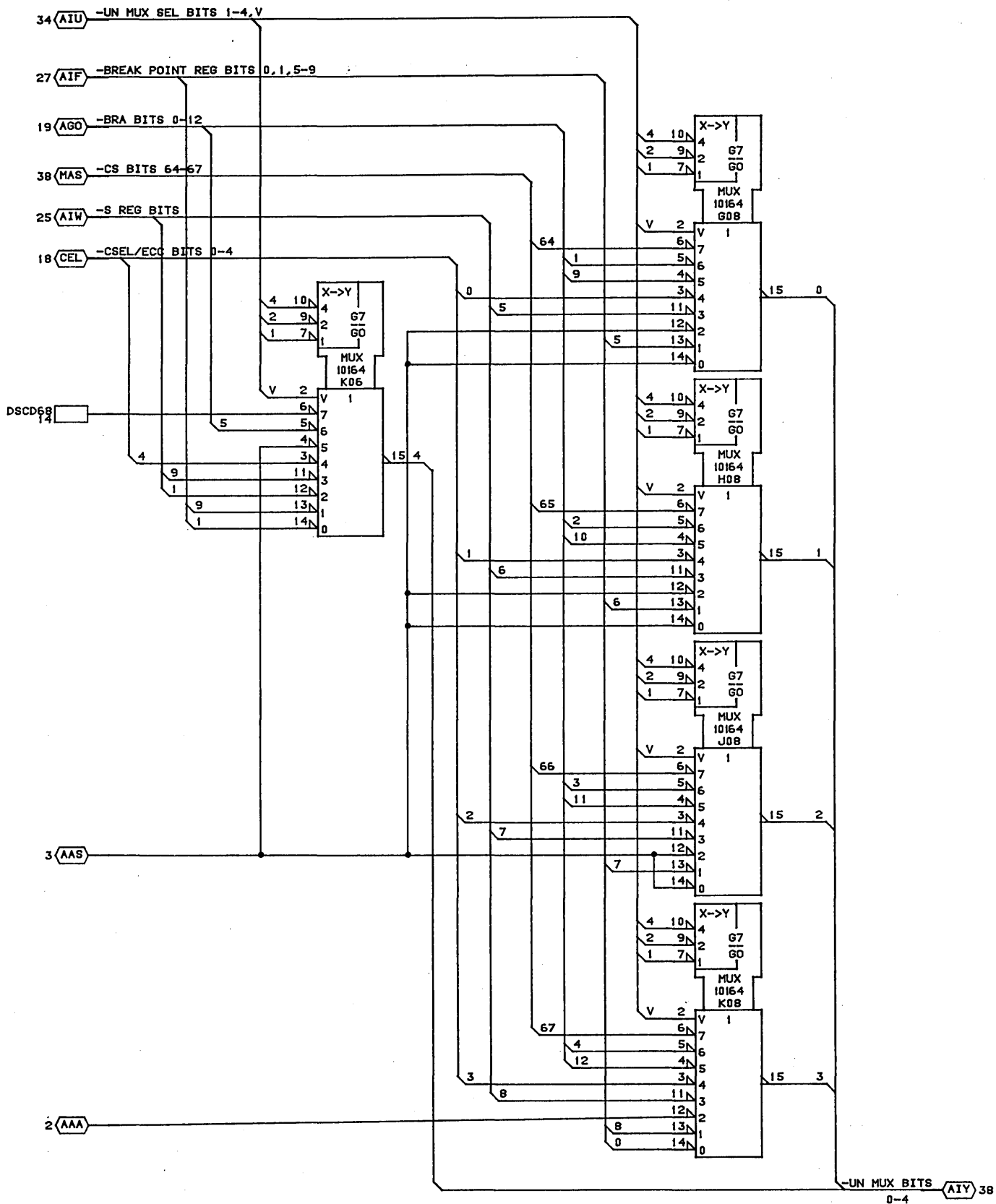


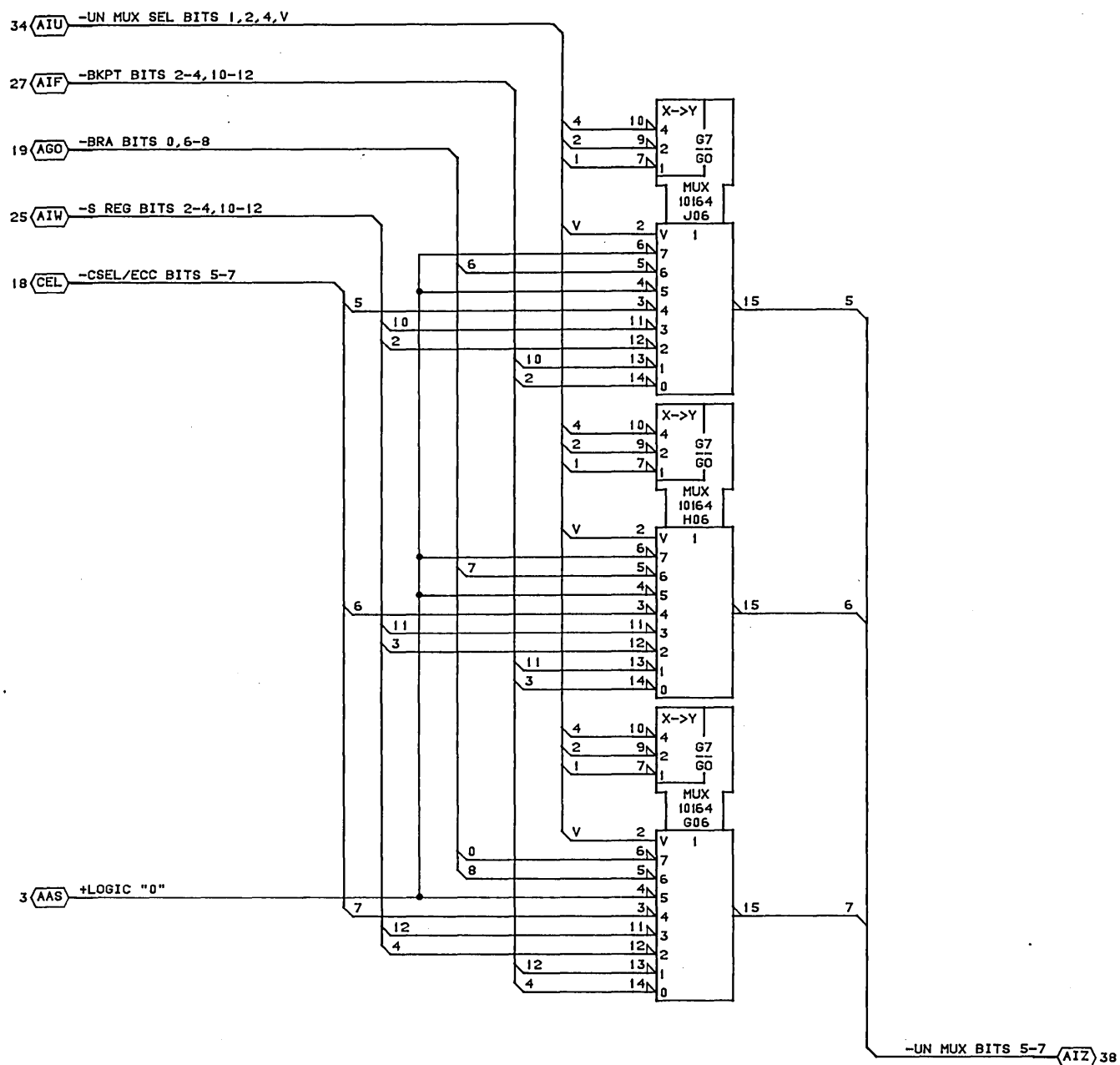






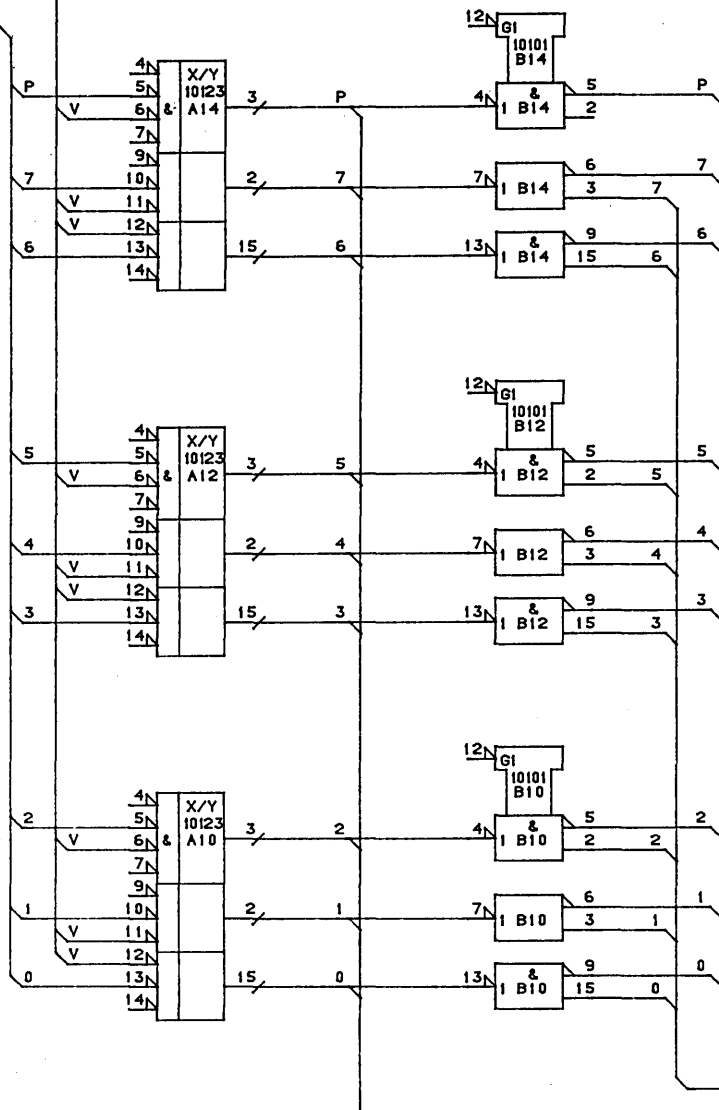






34 (AIU) -UN MUX SEL BIT V

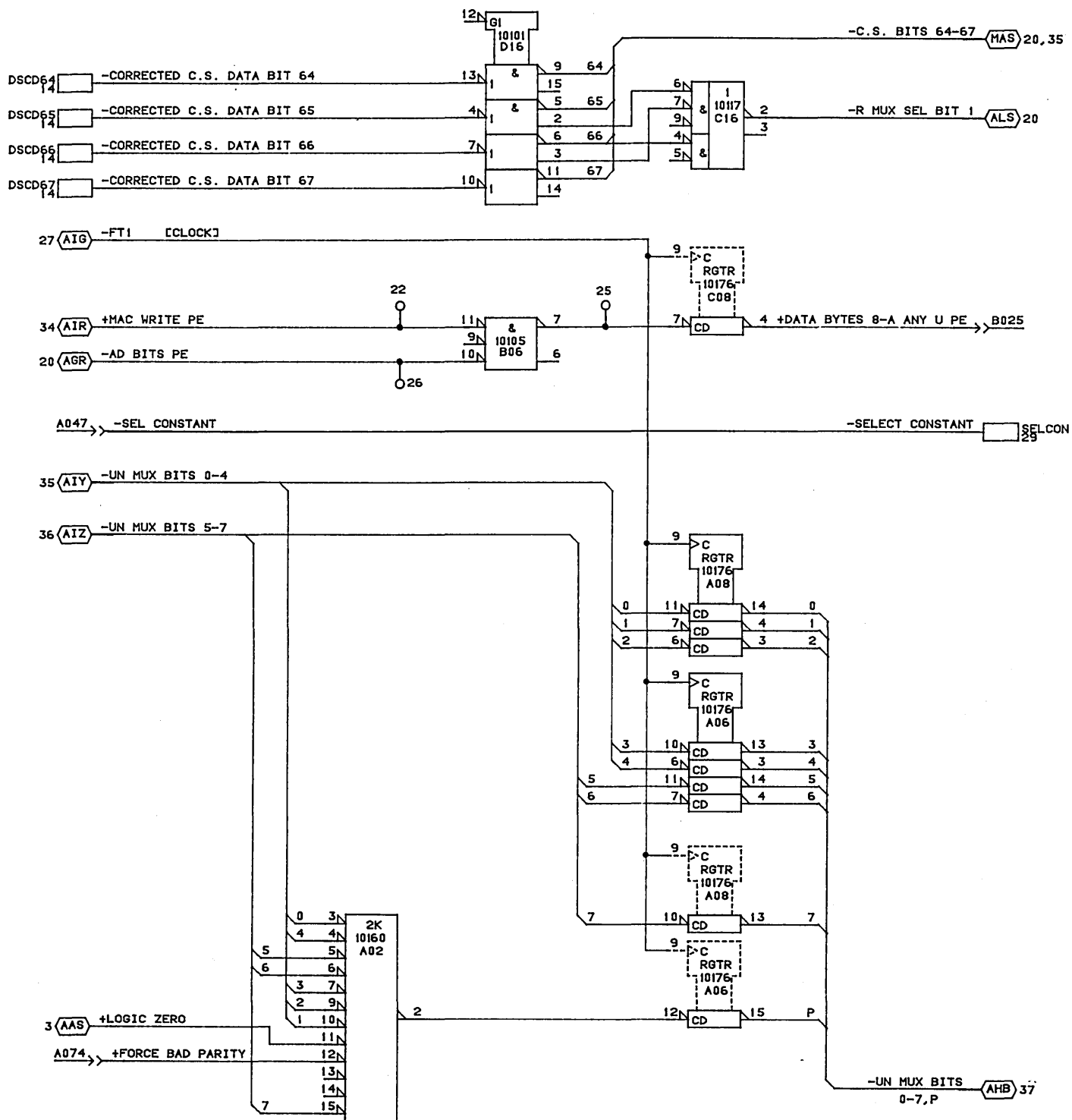
38 (AHB) -UN MUX BITS  
0-7, P



+P1 BUS DATA BITS 0-7, P (AIJ) 34  
-P1 BUS DATA BITS 0-7 (AIJ) 15, 16, 22-24, 27

0	+P1 BUS DATA BIT 0	*A030
1	+P1 BUS DATA BIT 1	*A033
2	+P1 BUS DATA BIT 2	*B033
3	+P1 BUS DATA BIT 3	*A036
4	+P1 BUS DATA BIT 4	*A039
5	+P1 BUS DATA BIT 5	*A040
6	+P1 BUS DATA BIT 6	*A041
7	+P1 BUS DATA BIT 7	*B045
P	+P1 BUS DATA BIT P	*A046

\* NOTE  
OUTPUT PINS ABOVE ARE  
BI-DIRECTIONAL LINES.  
THEY MUST BE TERM.  
TRUE FOIL LENGTH MUST  
BE LESS THAN 3 INCHES



CONTROL  
DATA  
CANADA  
LTD

MAC READ DATA REG.  
PARITY GENERATOR  
MODULE ASSY. 210 PAK  
TYPE: 1DS0

C

B

02-APR-85

SHEET 38

100

100

100

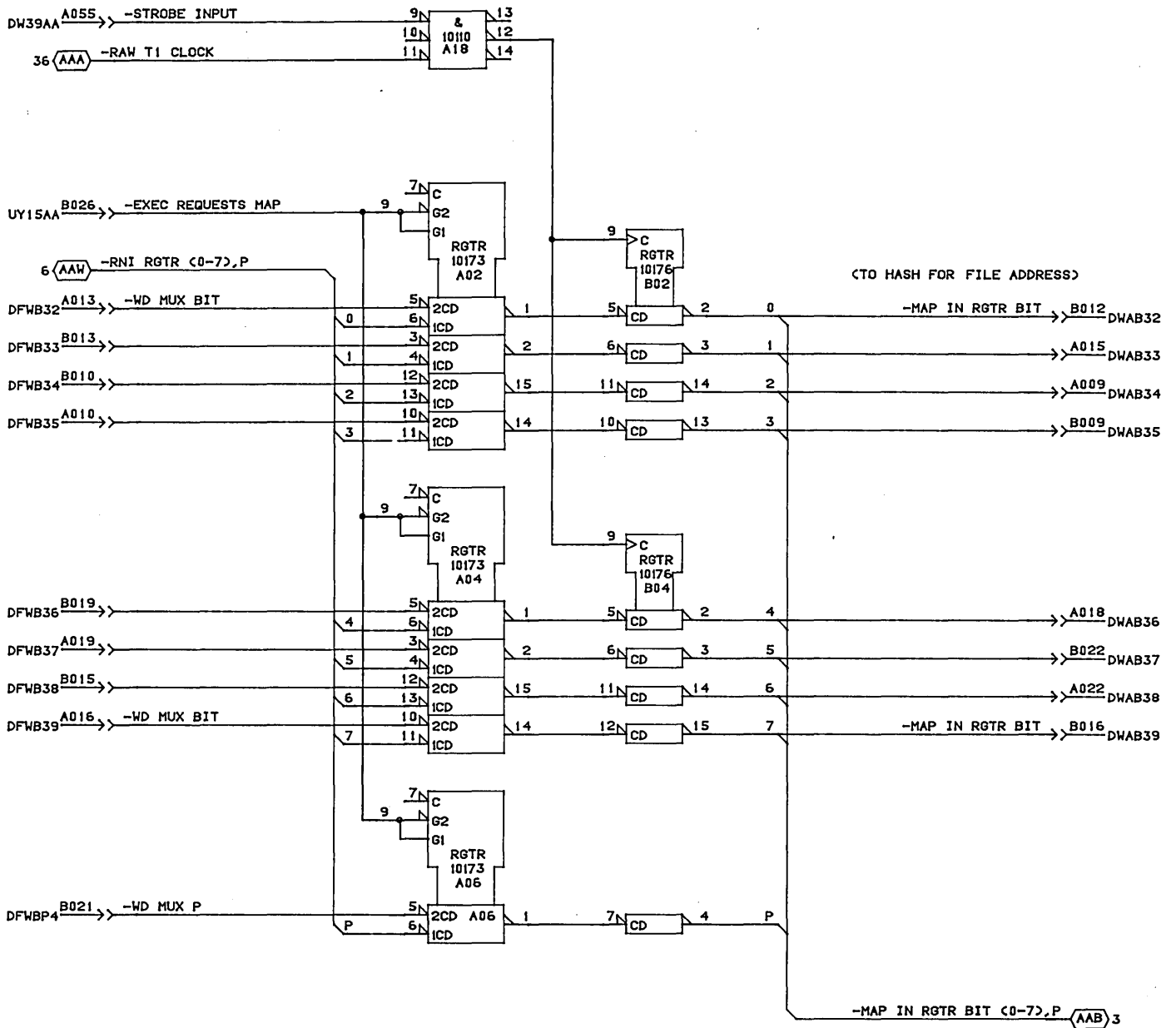
100

100

100

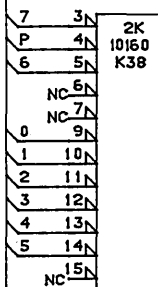
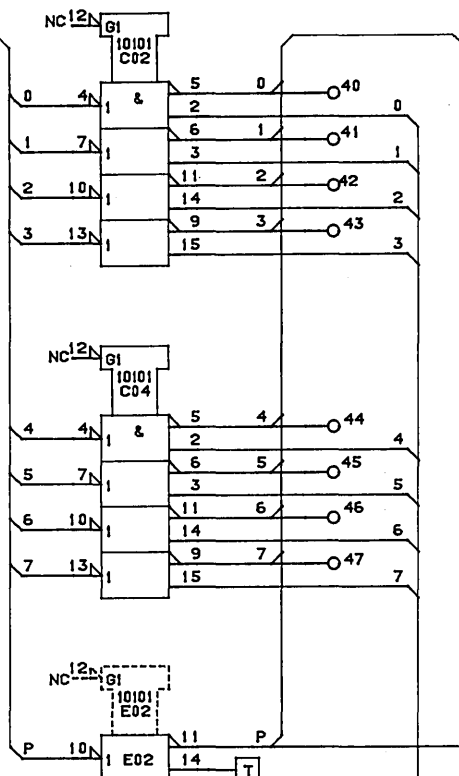
100





CONTROL DATA CANADA LTD	MAP DATA INPUT BITS C0-7, P 210 PAK ASSY TYPE: 1DW0	C		A
		02-APR-85	SHEET 02	

2 (AAB) -MAP IN RGTR  
BITS (0-7),P



2 +PARITY ERROR,BN BUS (AAD) 4

-MAP IN RGTR P (AAC) 23,25

-MAP IN RGTR (0-7),P (AAE) 5-9, 12-17, 19,20,33

+MAP IN RGTR (0-7) (AAF) 7

- PD1GP2 A037 > T
- B047 > T
- B052 > T
- B055 > T
- A058 > T
- DWAB33 A086 > T
- DWAB34 B086 > T
- DWAB35 A089 > T
- DWAB36 B089 > T
- A090 > T
- DWVL32 B090 > T
- DWVL36 A091 > T
- DWVL48 B091 > T
- PD1G16 B085 > T

CONTROL  
DATA  
CANADA  
LTD

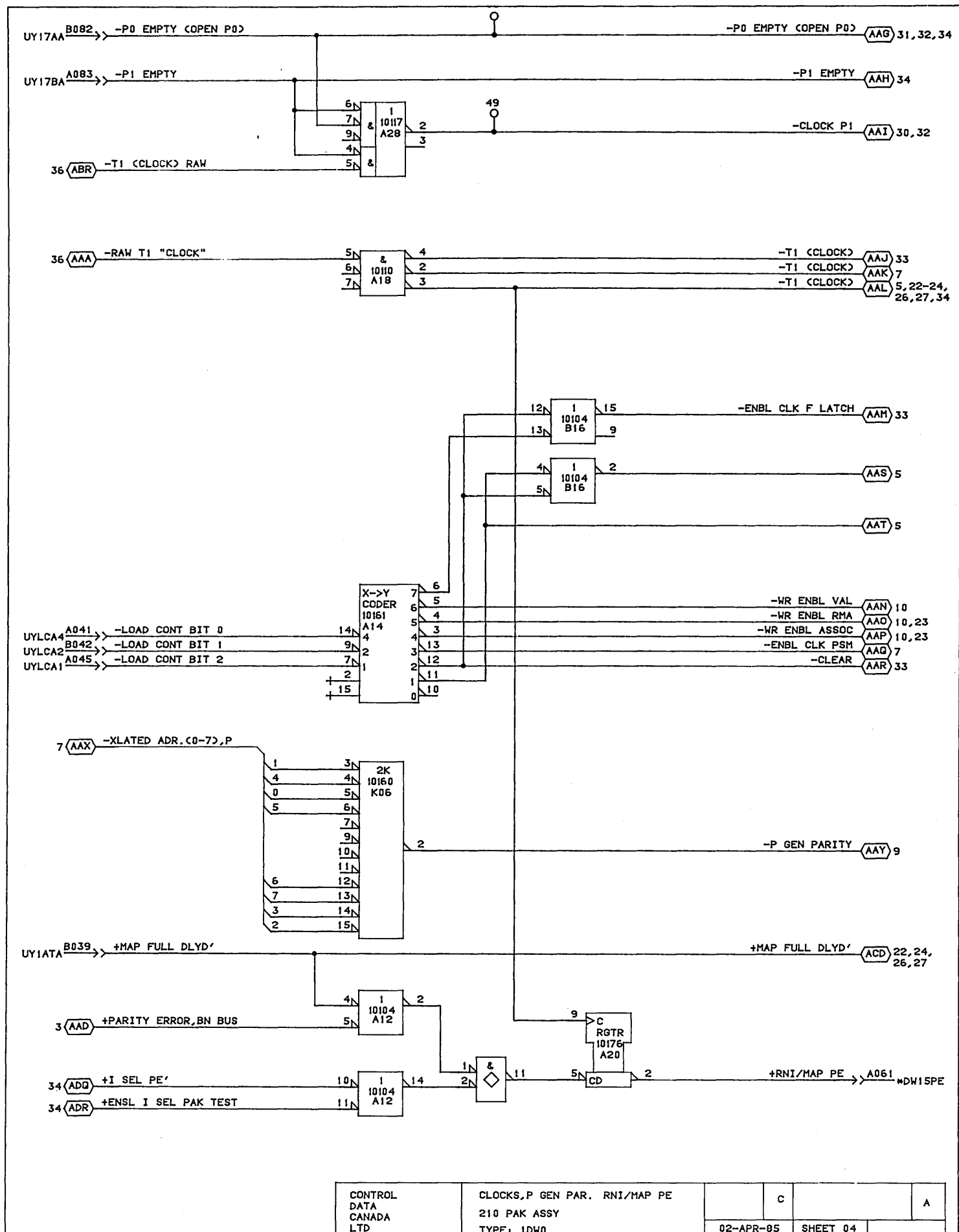
210 PAK ASSY  
TYPE: 1DW0

02-APR-85

SHEET 03

C

A



CONTROL  
DATA  
CANADA  
LTD

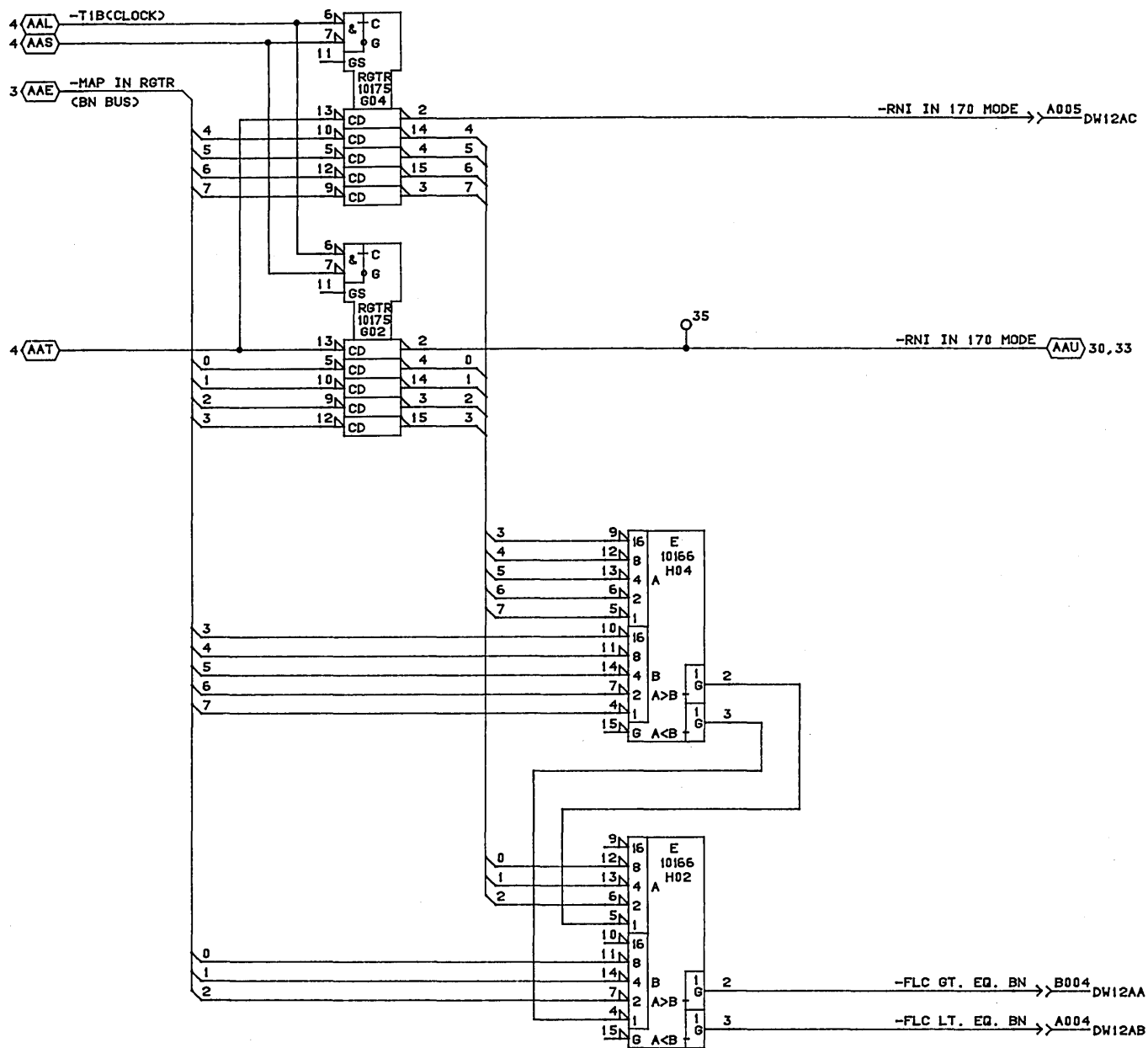
CLOCKS, P GEN PAR. RNI/MAP PE  
210 PAK ASSY  
TYPE: 1DW0

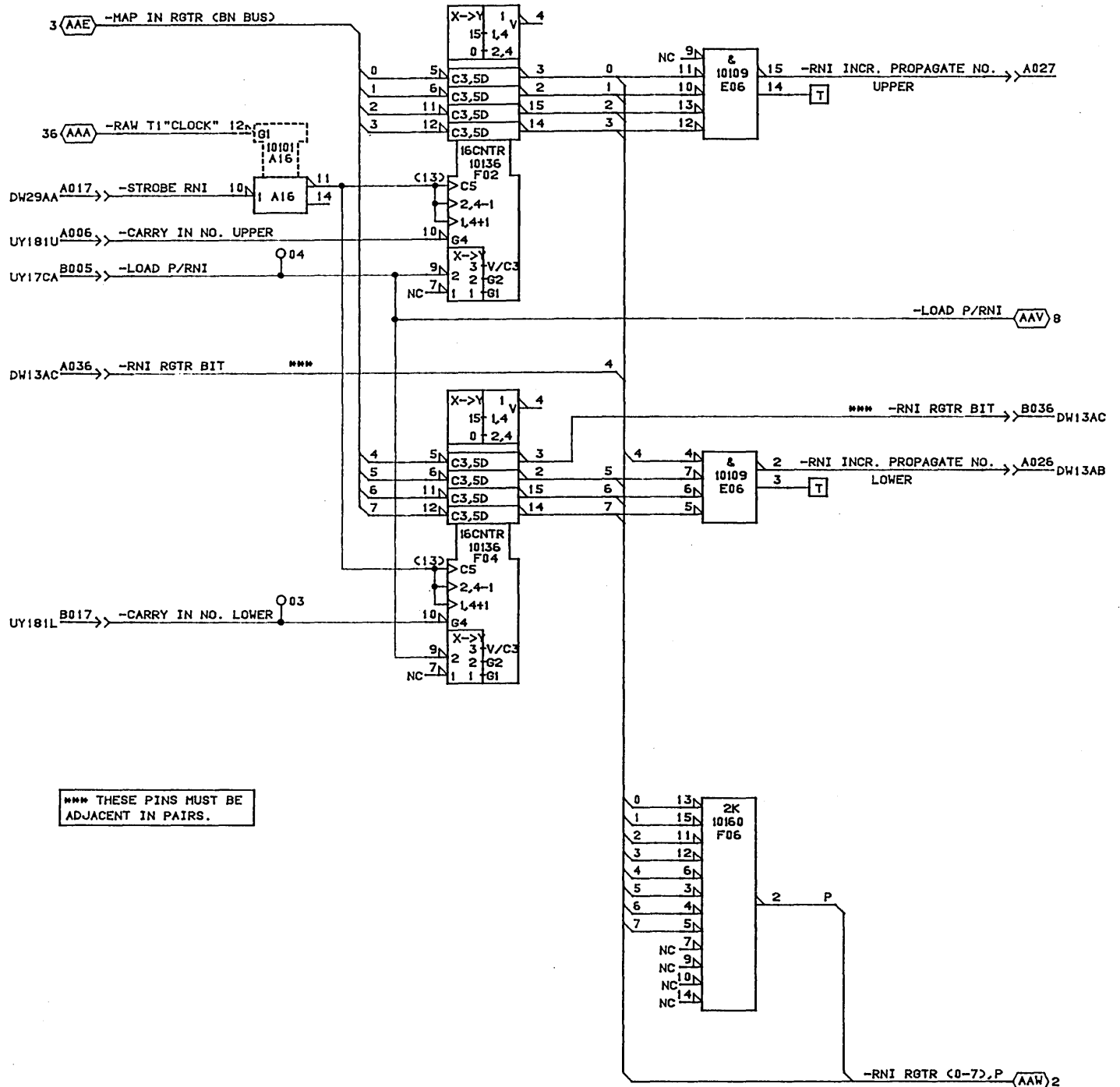
C

A

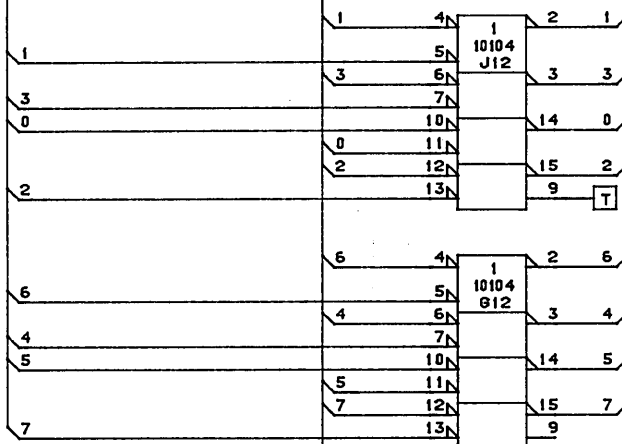
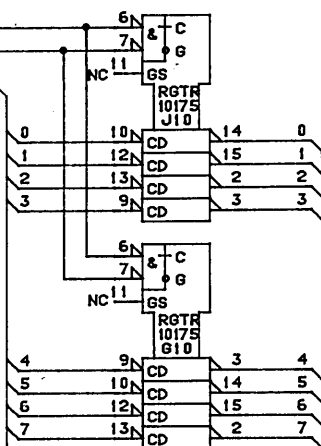
02-APR-85

SHEET 04

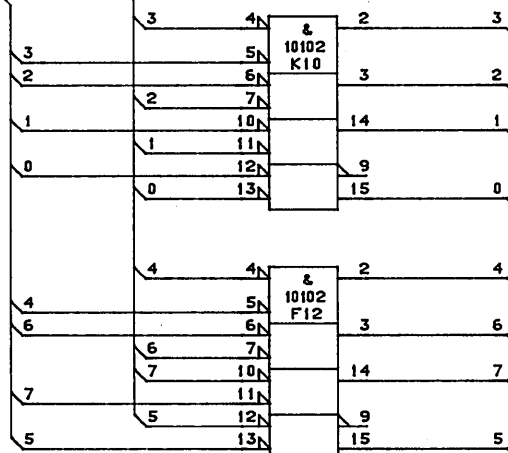




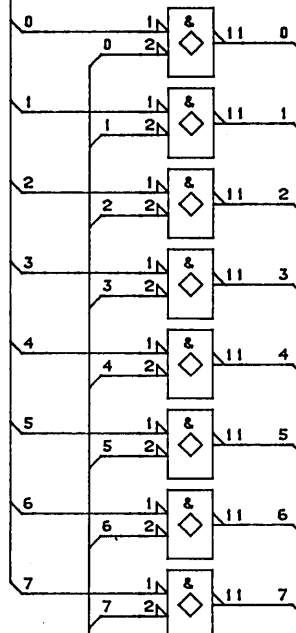
4 AAD -ENBL CLK PSM  
 4 AAK -T1A CCLOCK  
 3 AAE -MAP IN RGTR  
 (CBN BUS) (0-7)



3 AAF +MAP IN RGTR (CBN BUS) (0-7)



-MASKED PN (CBN+NOT. PSM) ADT 12-15



-XLATED ADR. AAX 4,9  
 (0-7)

CONTROL  
 DATA  
 CANADA  
 LTD

PAGE MASKING, PAGE SIZE  
 210 PAK ASSY  
 TYPE: 1DW0

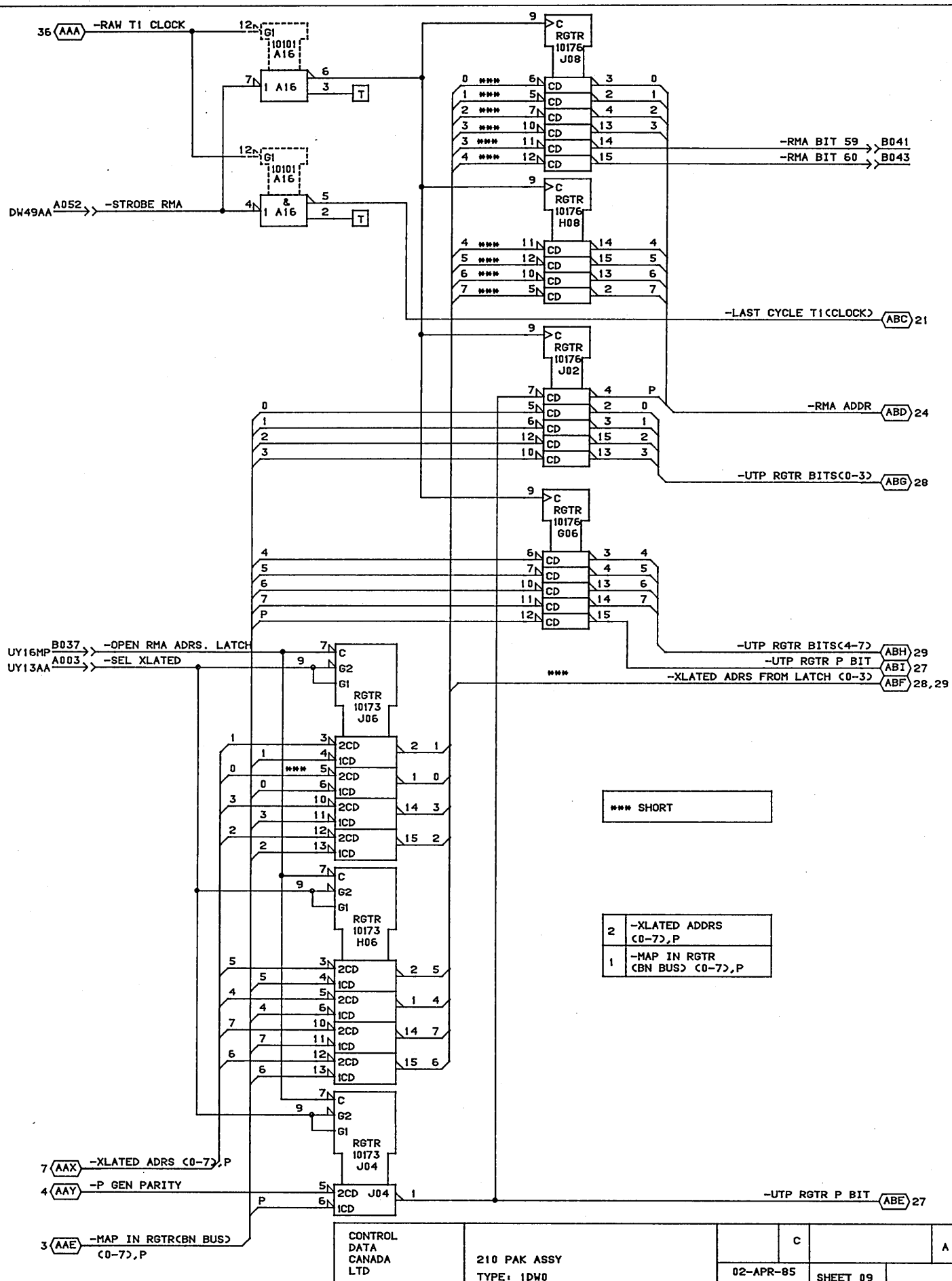
02-APR-85

SHEET 07

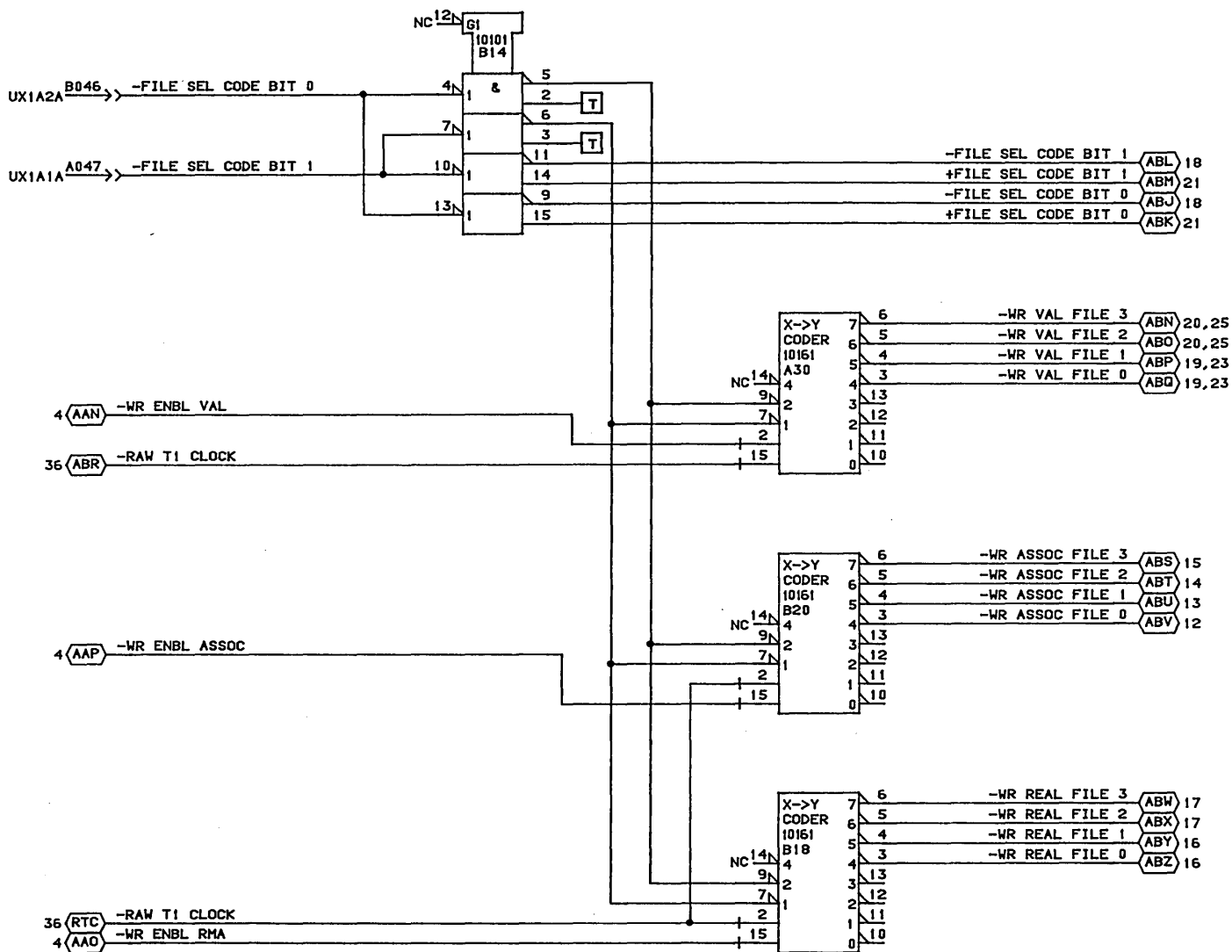
C

A









CONTROL  
DATA  
CANADA  
LTD

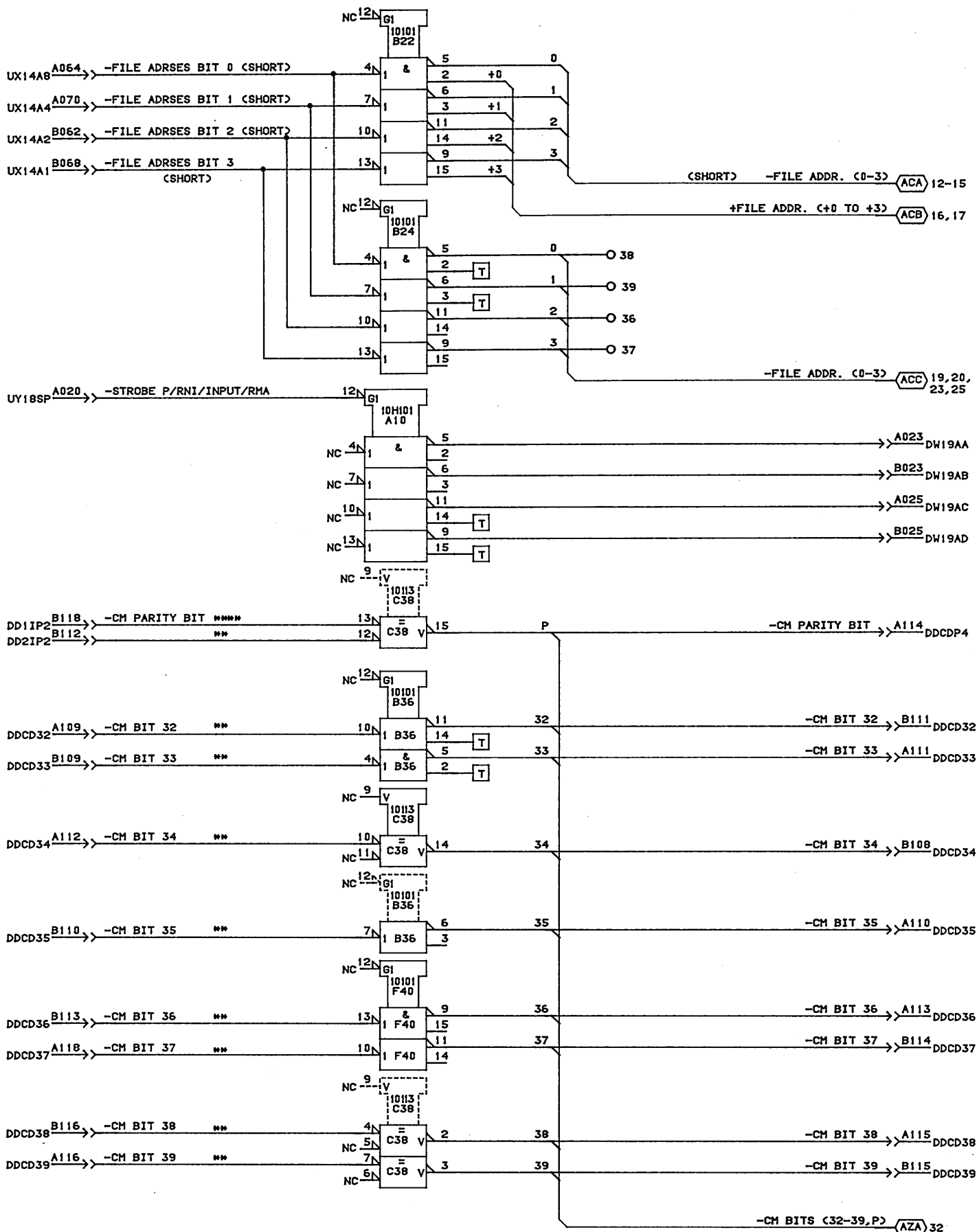
210 PAK ASSY  
TYPE: 1DW0

C

A

02-APR-85

SHEET 10



\*\*\* NOTE: THESE LINES  
MUST BE VERY SHORT.

CONTROL  
DATA  
CANADA  
LTD

FILE ADDRESS  
210 PAK ASSY  
TYPE: 1DWD

	C		A
02-APR-85	SHEET 11		



22 (ACR) +PE, FILE 0

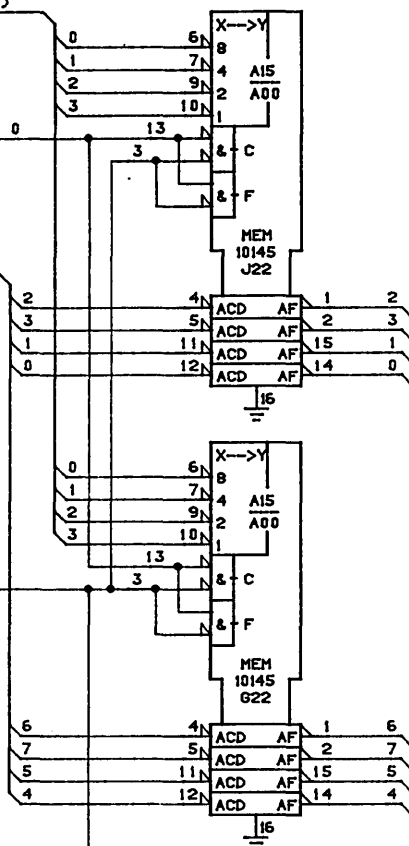
11 (ACA) -FILE ADRS<0-3>

10 (ABV) -WR ASSOC FILE 0

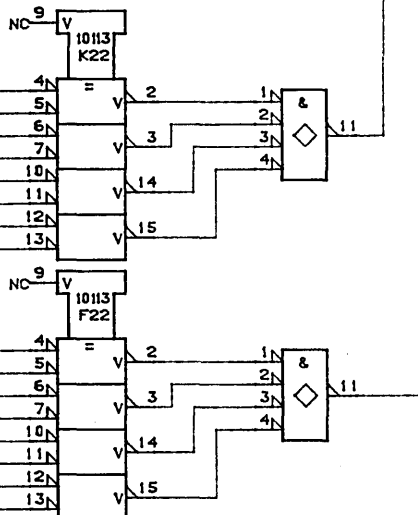
3 (AAE) -MAP IN RGTR  
(CBN BUS)<0-7>

B045 -PAKTEST

7 (ADT) -MASKED PNCBN+NOT.PSM>



NC 12N & 10109 A22 15 -HIT ON BN FILE 0 BITS A062 DW16H0  
NC 13N 11N 14 (SHORT)



-ASSOC MEM FILE 0 <0-7> (ACE) 22,28,29

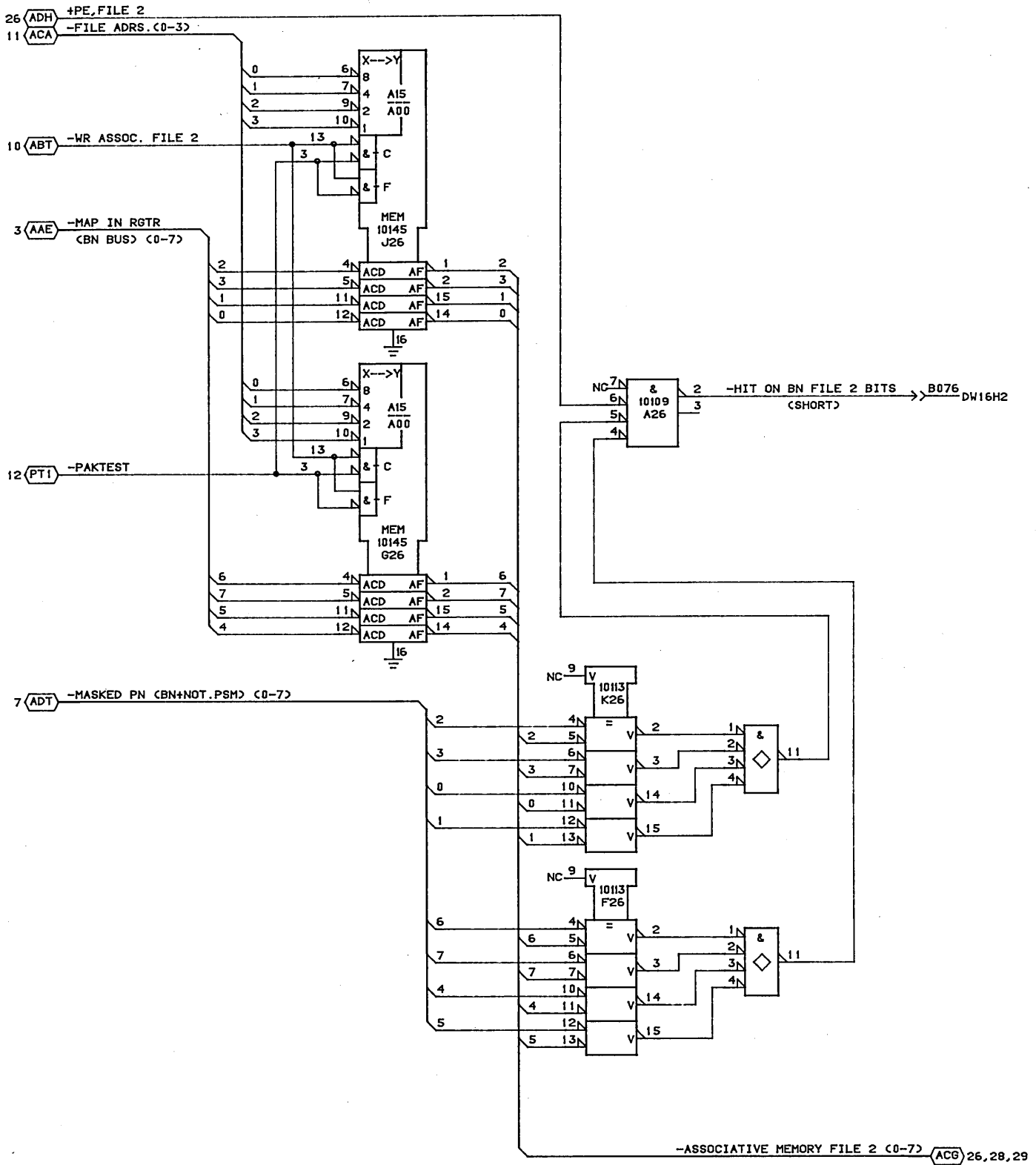
-PAKTEST (PTI) 13,14

CONTROL  
DATA  
CANADA  
LTD

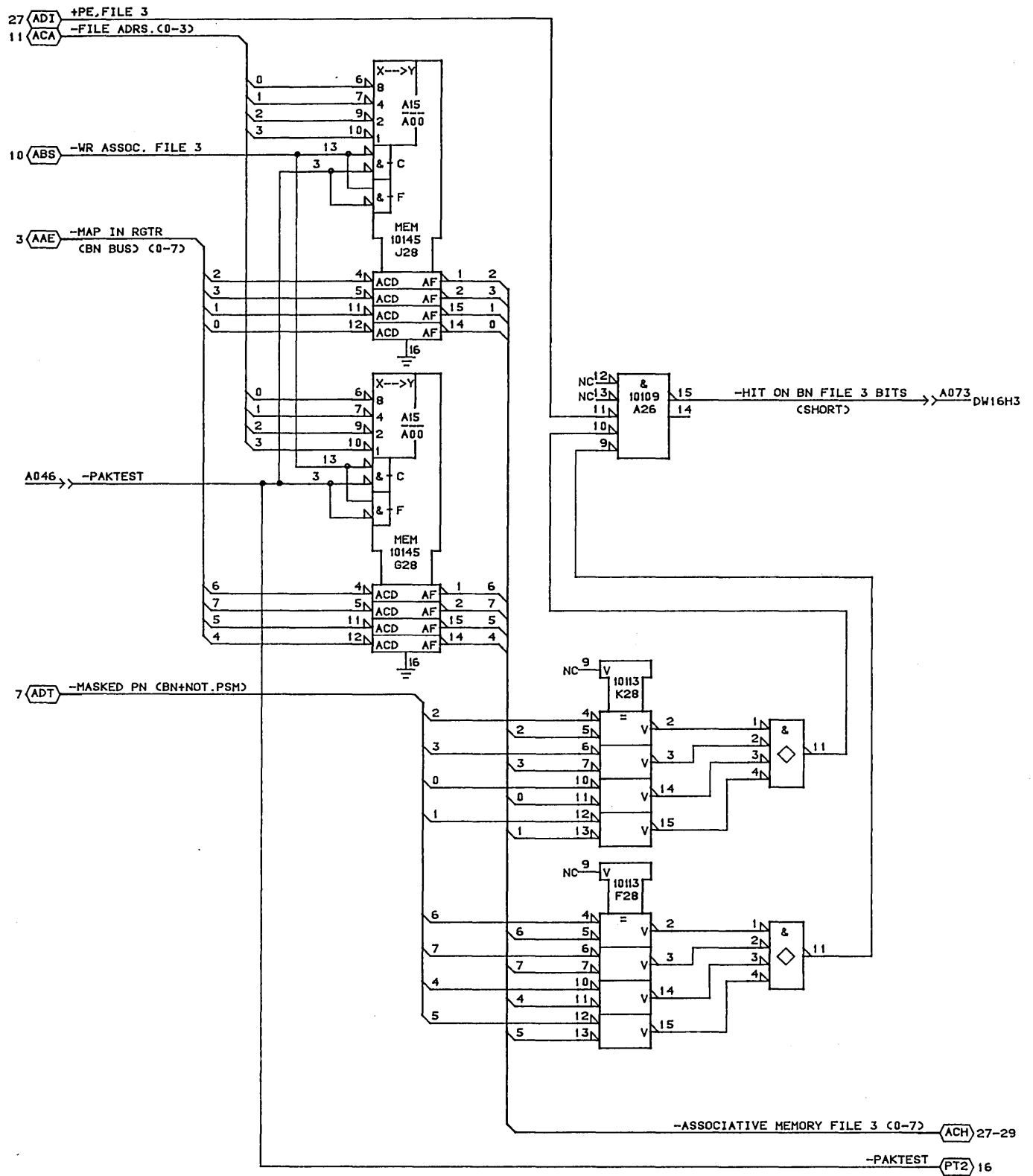
ASSOCIATIVE FILE 0  
HIT COMPASSOR  
210 PAK ASSY  
TYPE: 1DW0

	C	A
02-APR-85	SHEET 12	

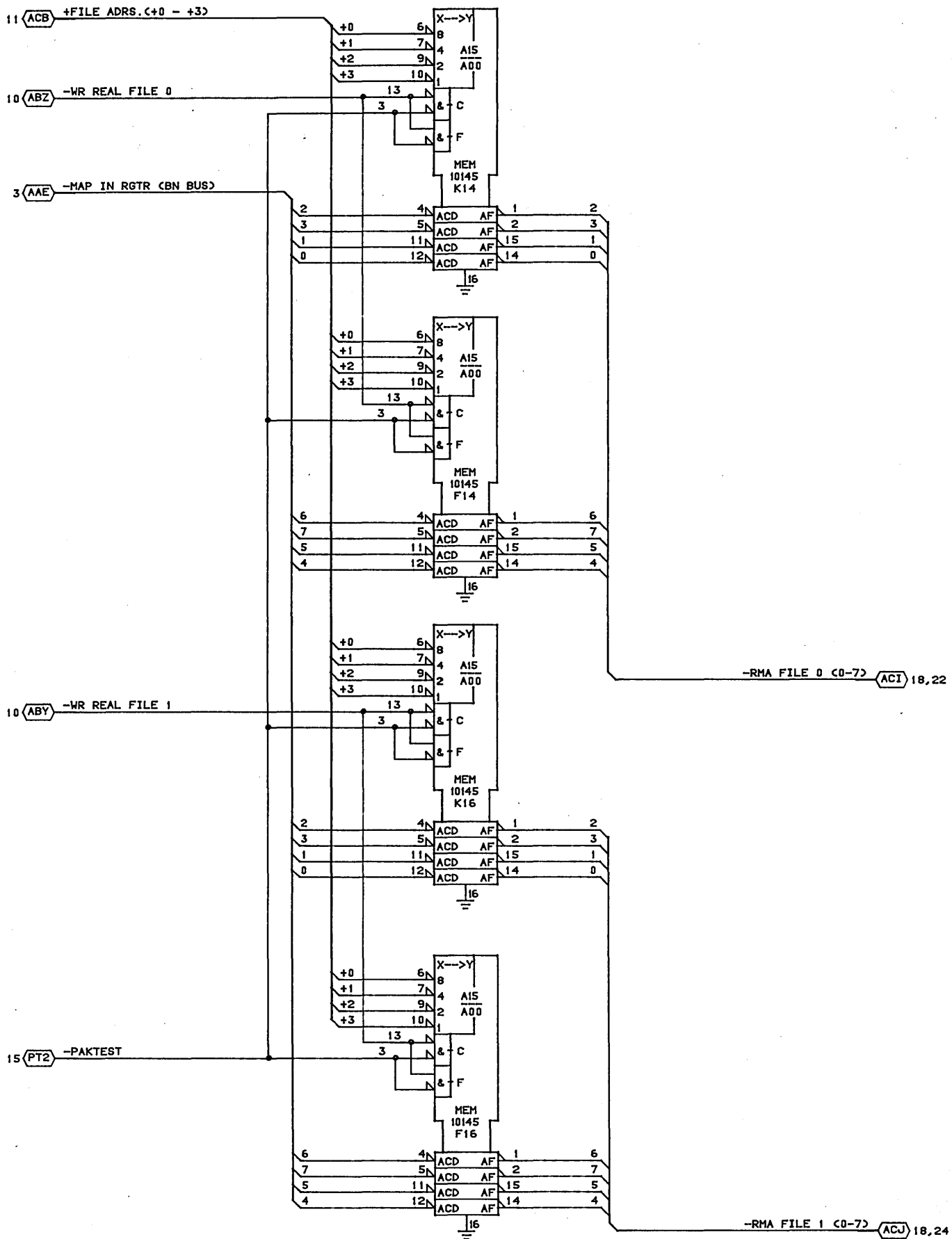




CONTROL DATA CANADA LTD	ASSOCIATIVE FILE 2 HIT COMPARATOR 2 210 PAK ASSY TYPE: 1DW0		C		A
		02-APR-85	SHEET 14		



CONTROL DATA CANADA LTD	ASSOCIATIVE FILE 3 HIT COMPARATOR 3 210 PAK ASSY TYPE: 1DW0		C		A
		02-APR-85		SHEET 15	



CONTROL DATA CANADA LTD	RMA FILES 0,1 BITS		C		A
	210 PAK ASSY				
	TYPE: 1DW0	02-APR-85	SHEET 16		



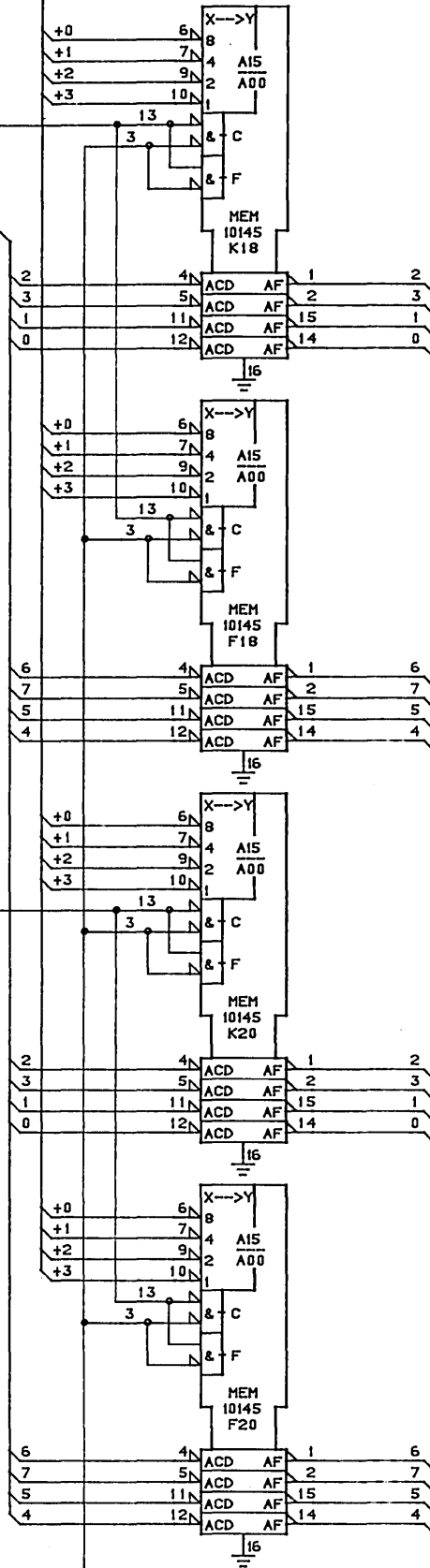
11 (ACB) +FILE ADRS (+0 - +3)

10 (ABX) -WR REAL FILE 2

3 (AAE) -MAP IN RGTR (BN BUS) (0-7)

10 (ABW) -WR REAL FILE 3

B048 -PAKTEST



RMA FILE 2 BITS (0-7) (ACK) 18,26

-RMA FILE 3 BITS (0-7) (ACL) 18,27

-PAKTEST (PT3) 19

CONTROL  
DATA  
CANADA  
LTD

RMA FILES 2,3  
BITS (0-7)  
210 PAK ASSY  
TYPE: 1DW0

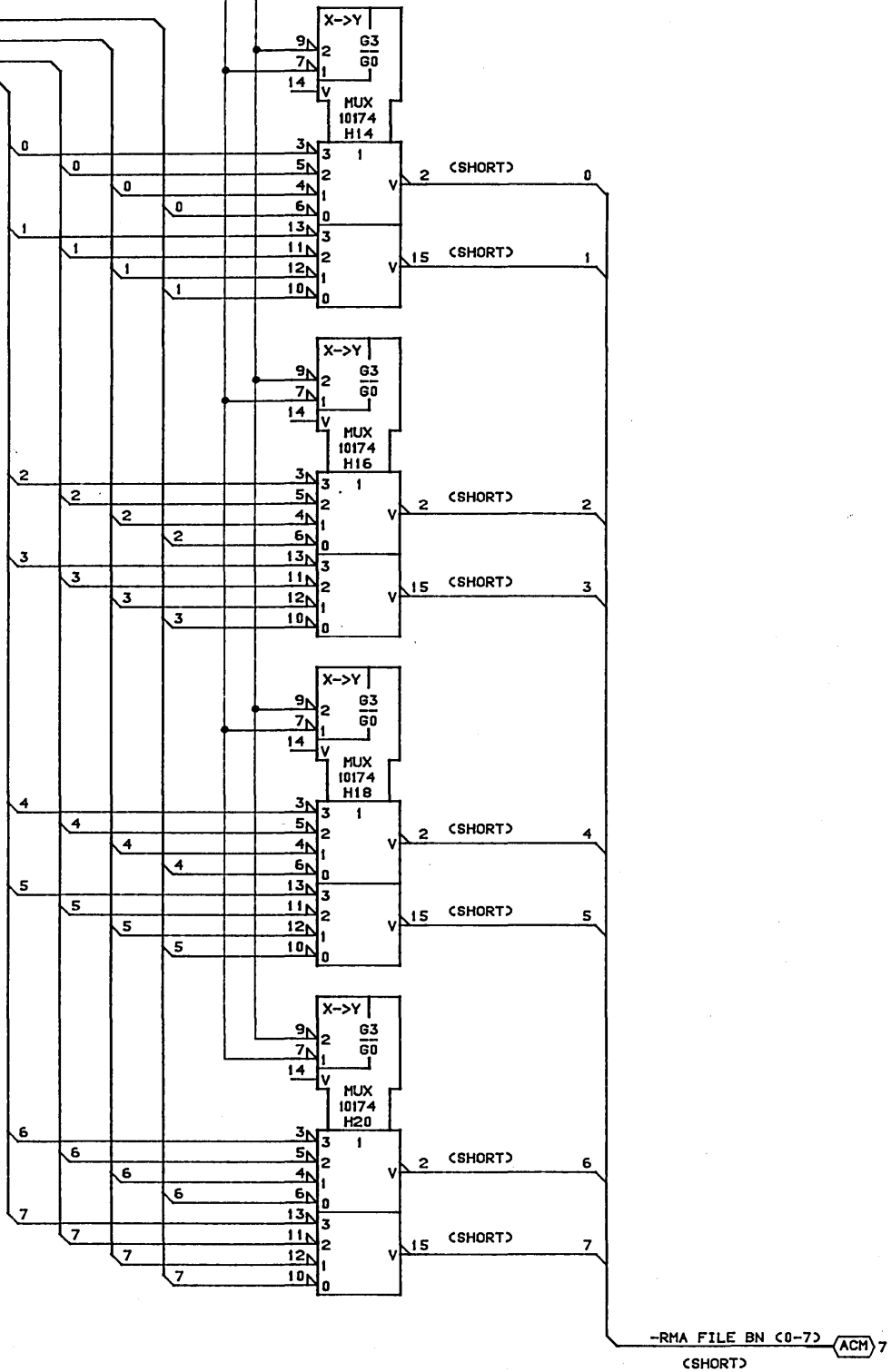
02-APR-85

SHEET 17

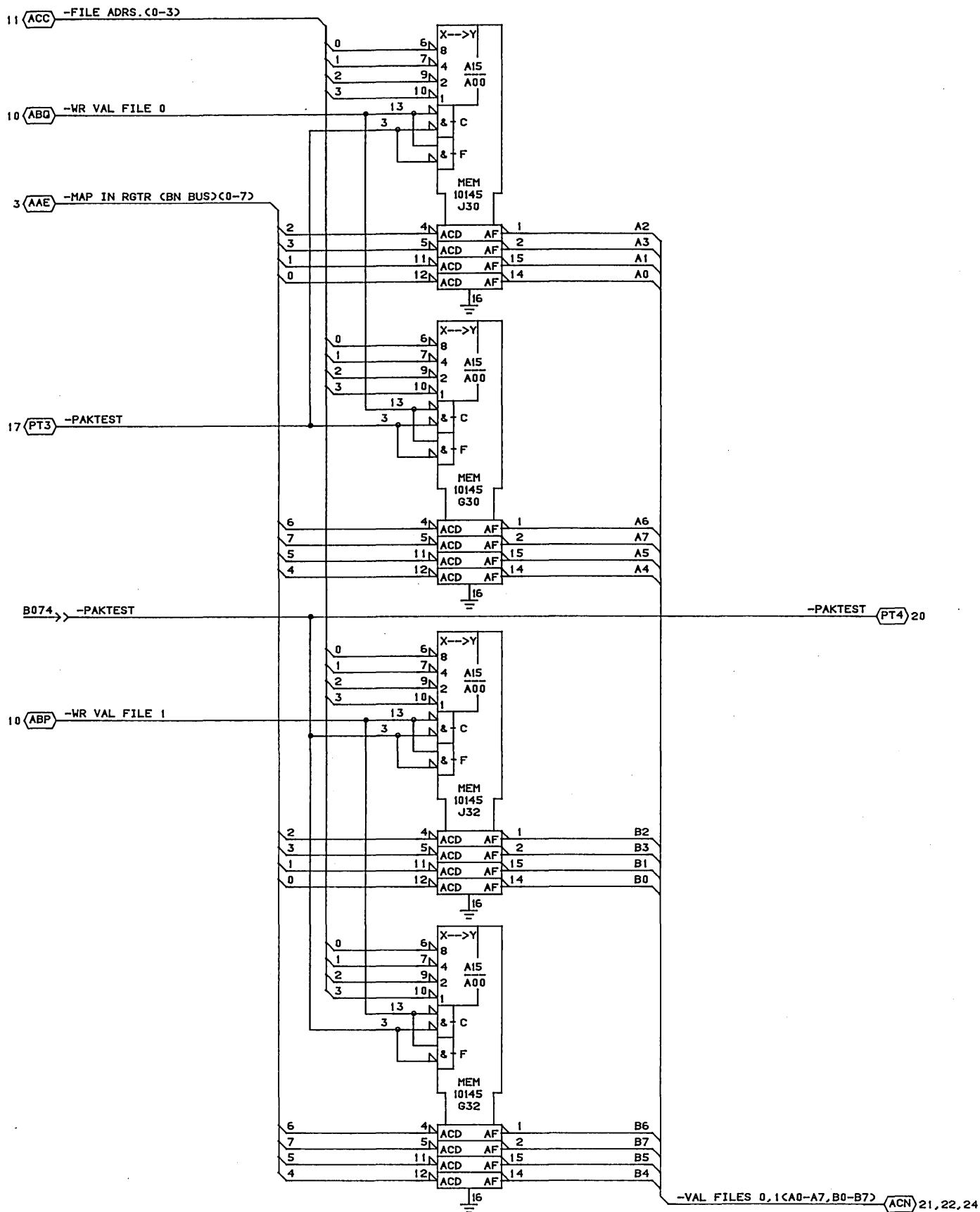
A

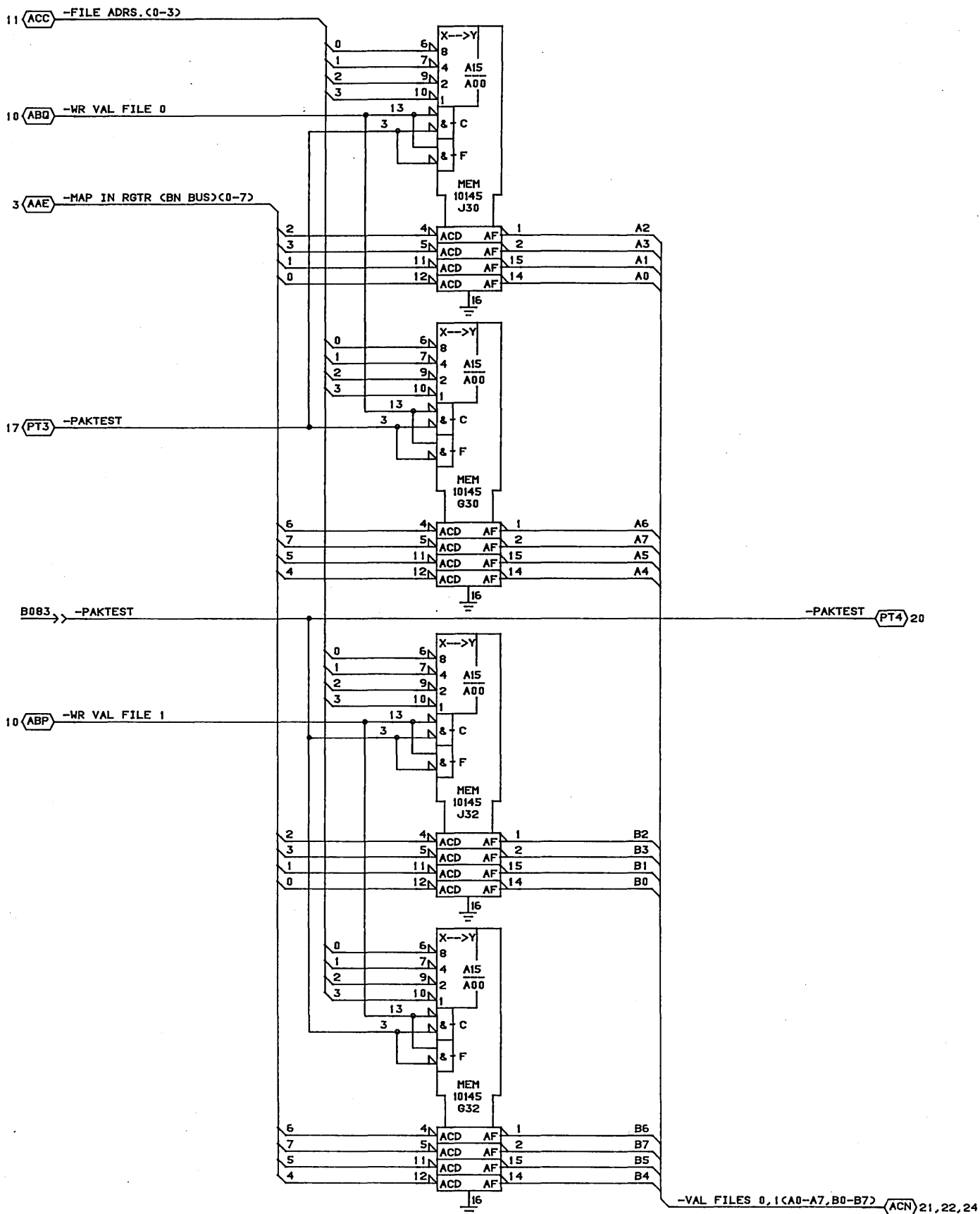
10 ABJ -FILE SEL CODE BIT 0  
 10 ABL +FILE SEL CODE BIT 0

16 ACI -RMA FILE 0  
 16 ACJ -RMA FILE 1  
 17 ACK -RMA FILE 2  
 17 ACL -RMA FILE 3



CONTROL DATA CANADA LTD	RMA FILE SEL 210 PAK ASSY TYPE: 1DW0	C		A
		02-APR-85	SHEET 18	





NOTE: THIS DRAWING IS  
APPLICABLE TO PWB  
19267974 ONLY.

CONTROL  
DATA  
CANADA  
LTD

VALIDITY FILES 0,1  
BITS (A0-A7,B0-B7)  
210 PAK ASSY  
TYPE: 1DW0

	C		B
12-JUN-86	19A		

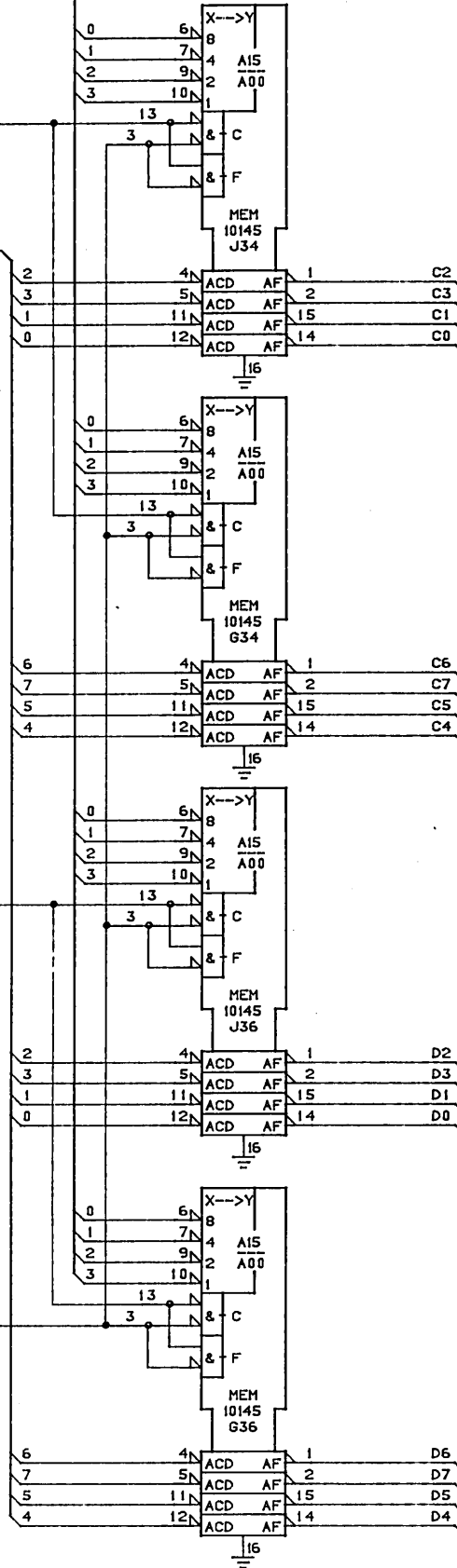
11 ACC -FILE ADRS. C0-3>

10 ABO -WR VAL FILE 2

3 AAE -MAP IN RGTR CBN BUS C0-7>

10 ABN -WR VAL FILE 3

19 PT4 -PAKTEST

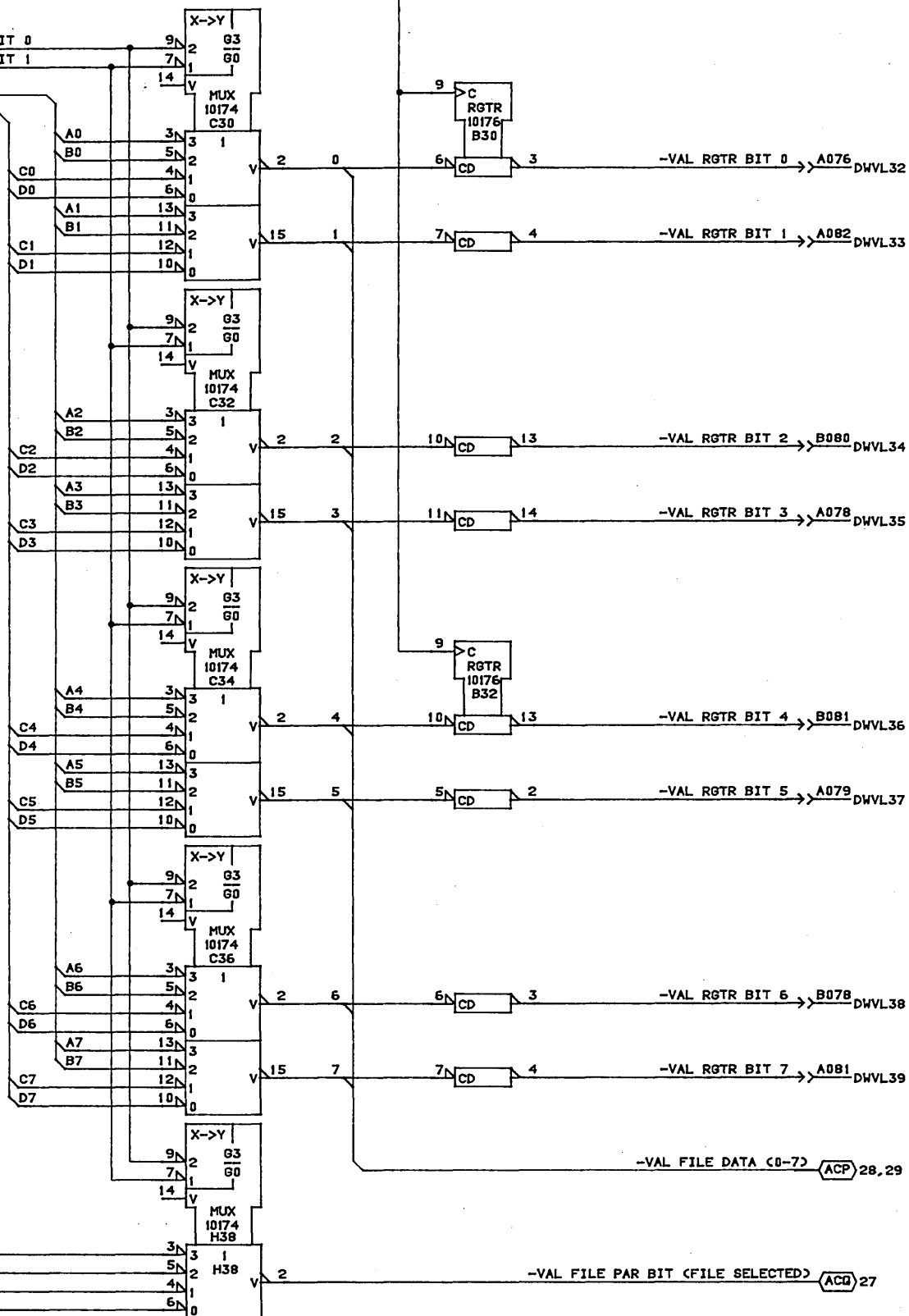


-VAL FILES 2,3  
C0-C7,D0-D7> ACO 21,26,27

CONTROL DATA CANADA LTD	VALIDITY FILES 2,3 BITS C0-C7,D0-D7> 210 PAK ASSY TYPE: 1DW0	C	A
		02-APR-85	SHEET 20

9 ABC -LAST CYCLE -T1 CLOCK

10 ABK +FILE SEL CODE BIT 0  
10 ABM +FILE SEL CODE BIT 1  
19 ACN -VAL FILES 0,1  
20 ACO -VAL FILES 2,3

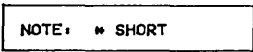


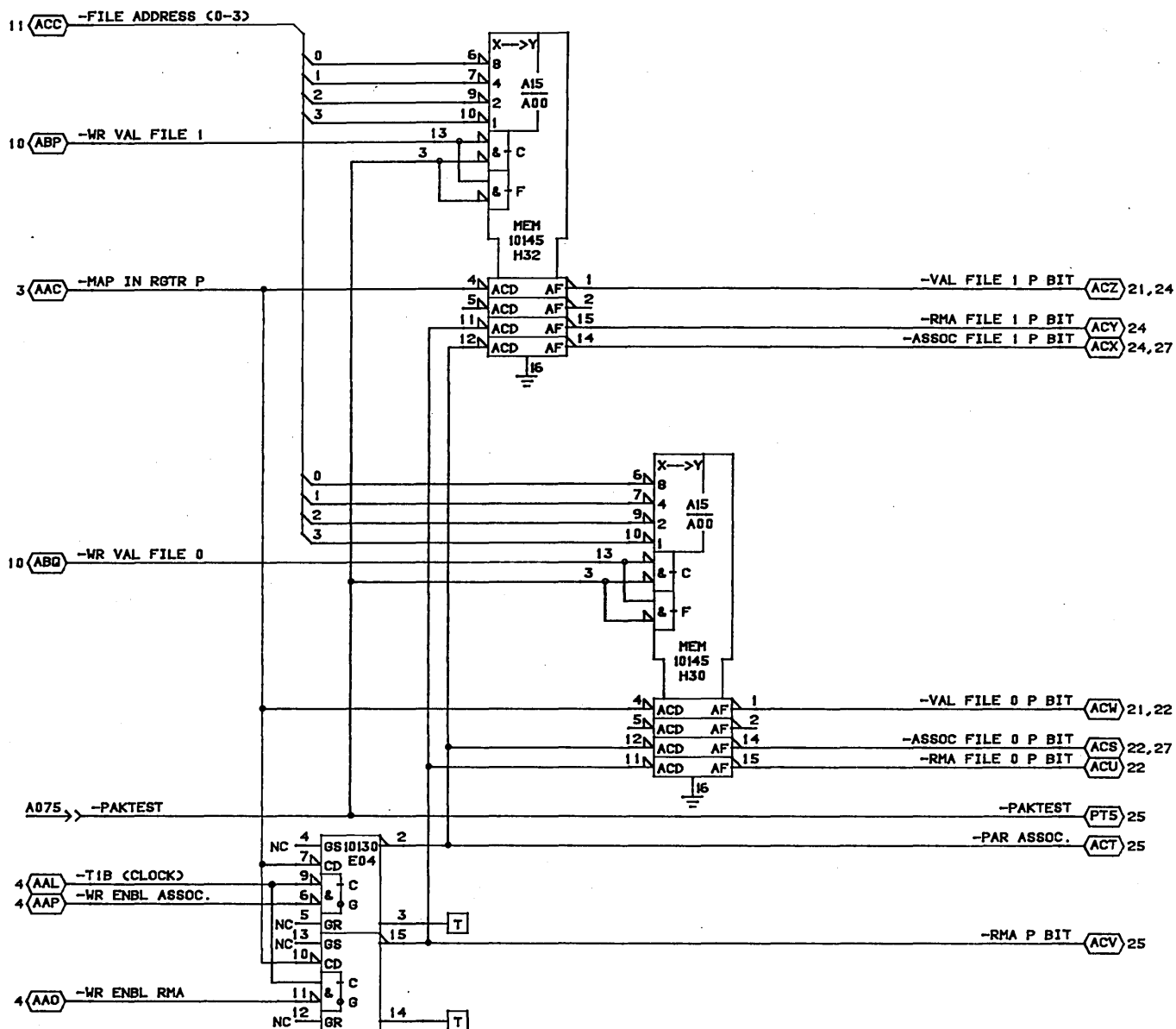
23 ACW -VAL PAR 0  
23 ACZ -VAL PAR 1  
25 ADD -VAL PAR 2  
25 ADG -VAL PAR 3

CONTROL  
DATA  
CANADA  
LTD

VAL RGR BITS 0-7, PAR  
MODULE ASSY:210 PAK  
TYPE: 1DW0

	C		A
02-APR-85	SHEET 21		





CONTROL  
DATA  
CANADA  
LTD

FILE 0,1 PARITY  
MODULE ASSY 210 PAK  
TYPE: 1DW0

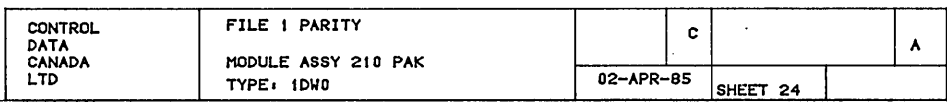
C

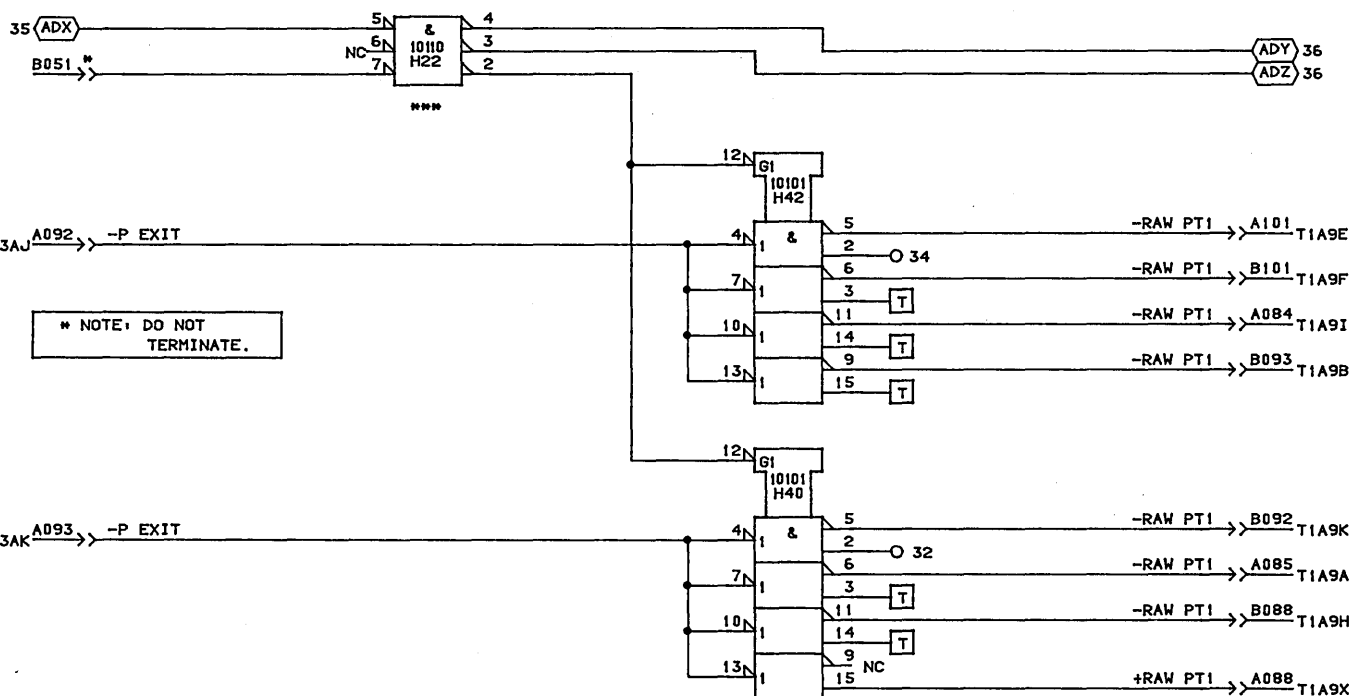
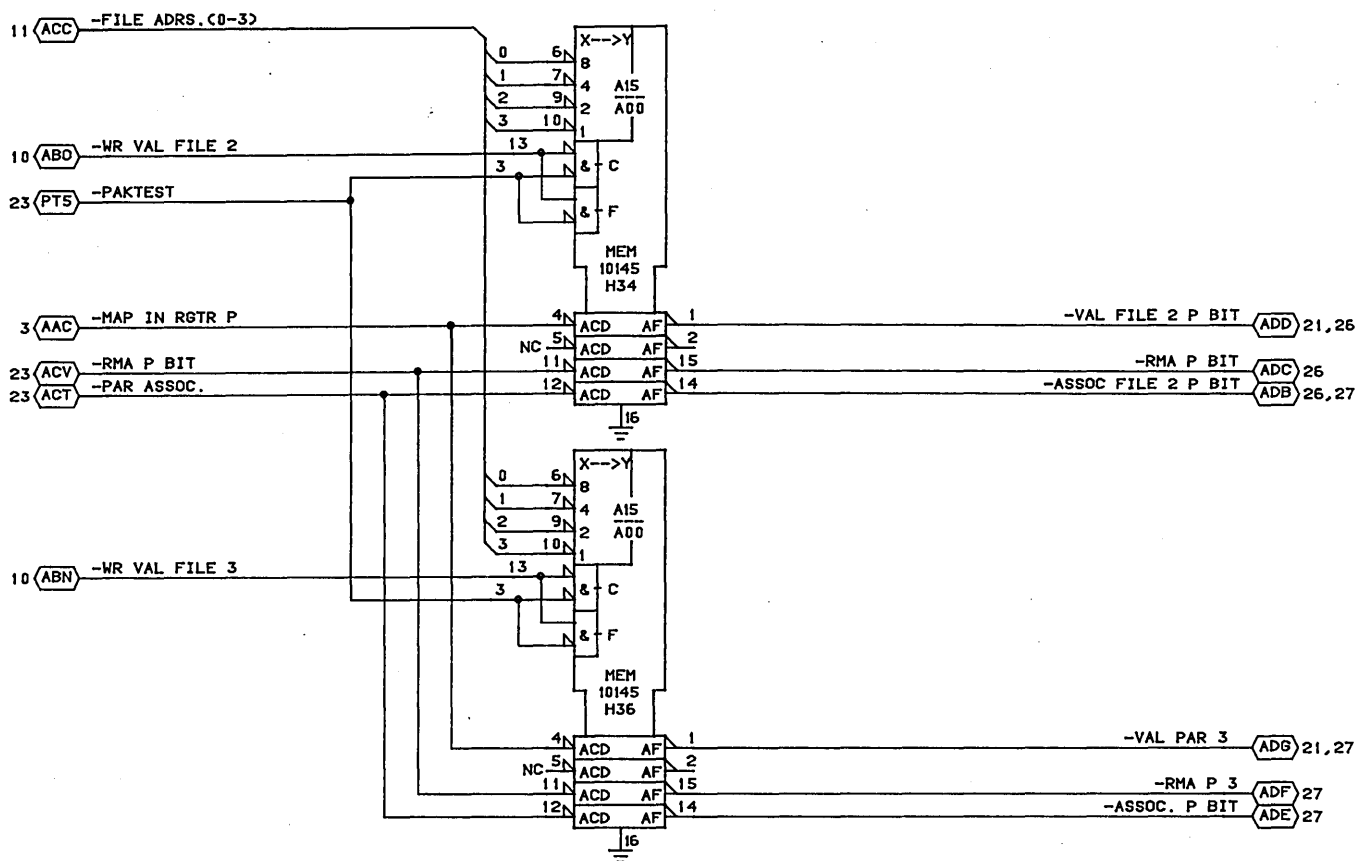
A

02-APR-85

SHEET 23







\* NOTE: DO NOT  
TERMINATE.

\*\*\* NOTE: SEE NOTE ON  
PAGE 36.

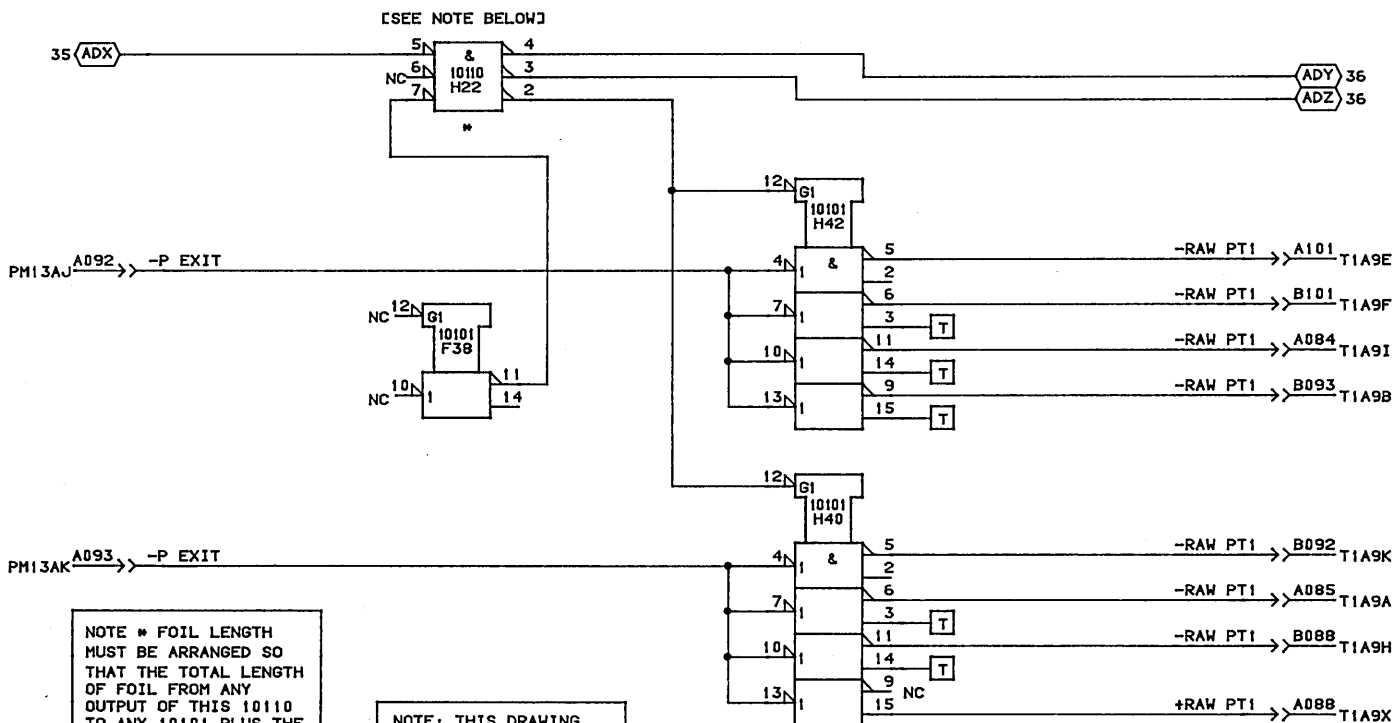
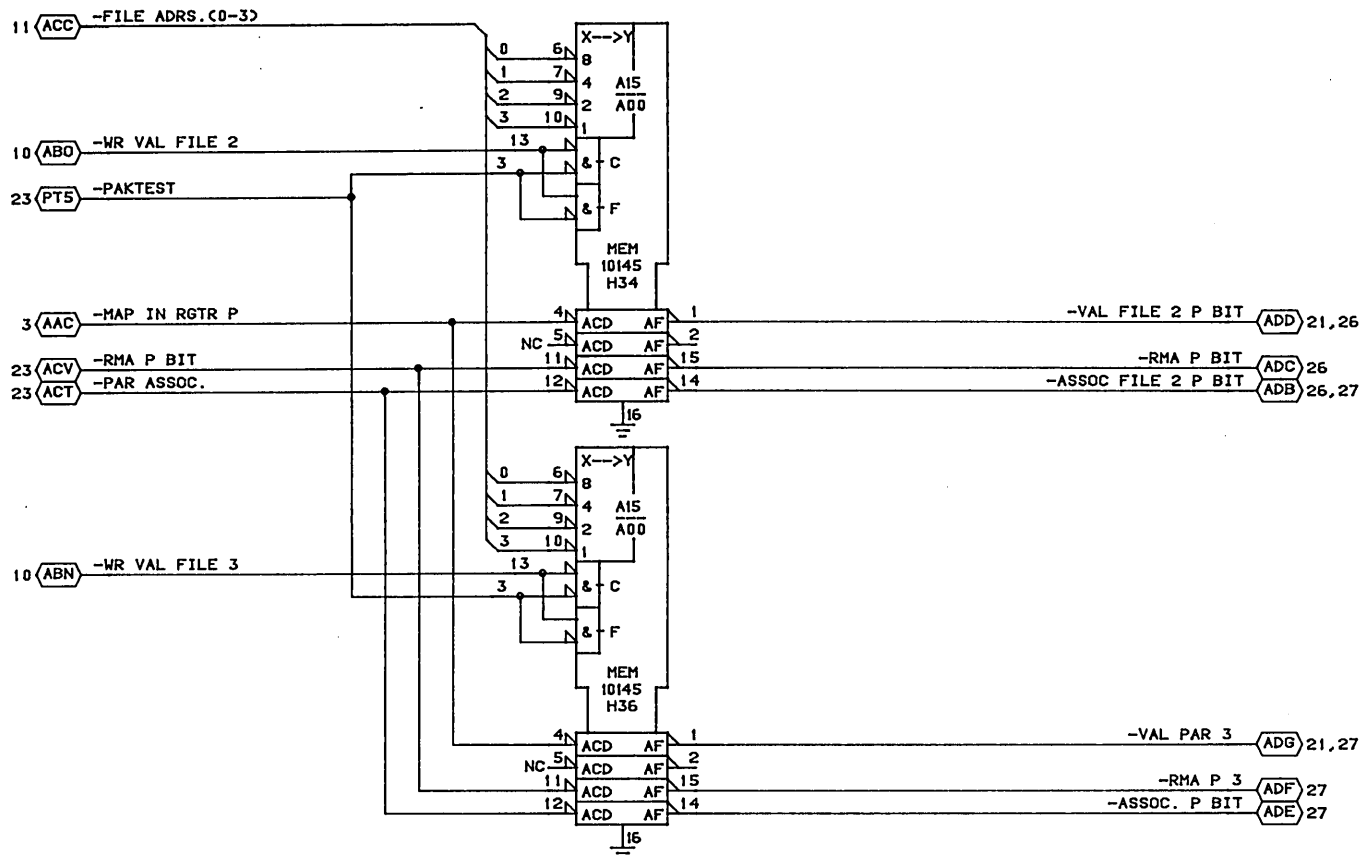
CONTROL  
DATA  
CANADA  
LTD

RAW PT1 CLOCK  
VAL FILES 2,3 AND RMA BITS  
MODULE ASSY 210 PAK  
TYPE: 1DW0

03-APR-85

SHEET 25

A



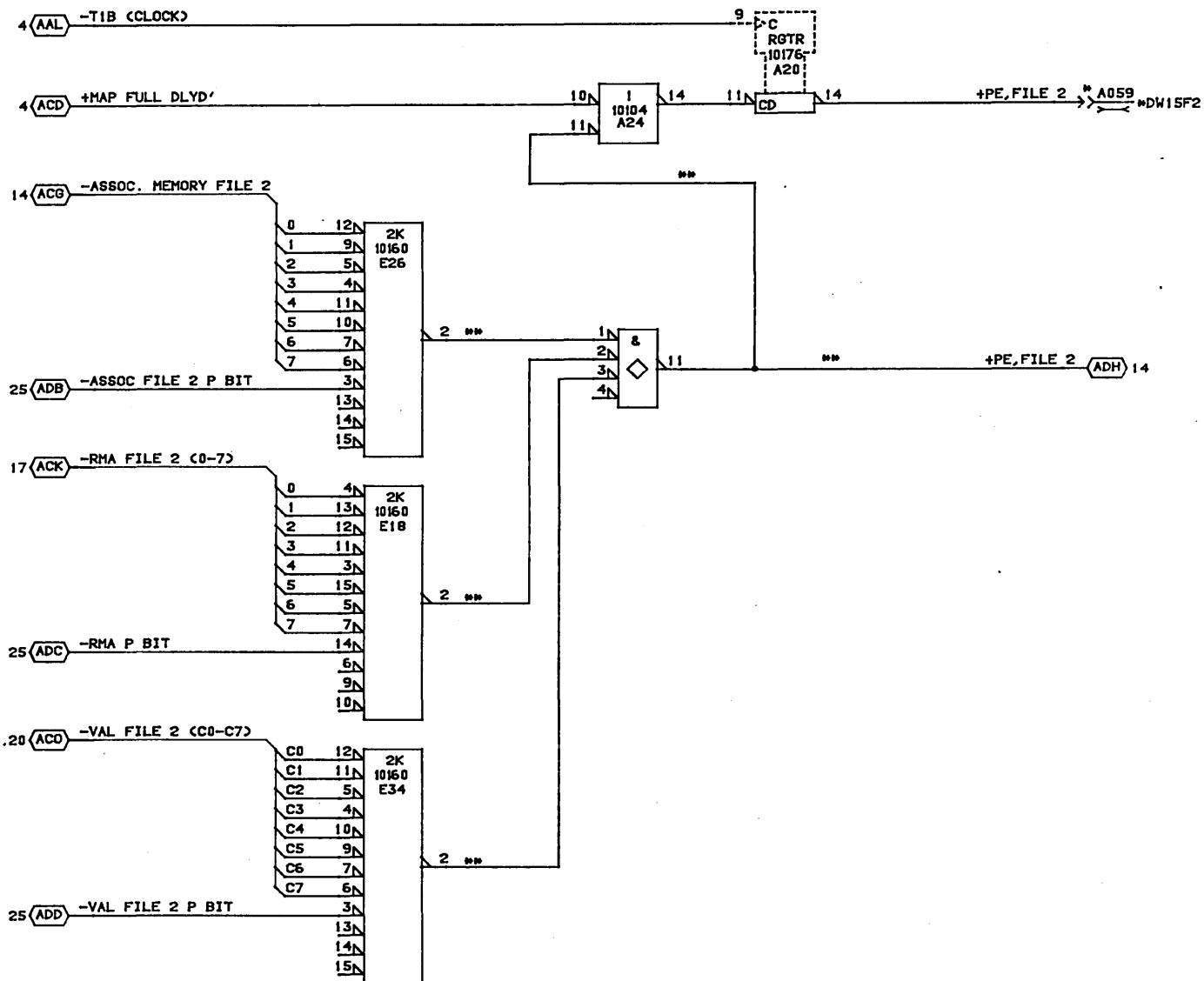
NOTE \* FOIL LENGTH MUST BE ARRANGED SO THAT THE TOTAL LENGTH OF FOIL FROM ANY OUTPUT OF THIS 10110 TO ANY 10101 PLUS THE LENGTH FROM AN OUTPUT OF THAT 10101 TO A CONNECTOR PIN MUST BE THE SAME (+/-1 IN) FOR ALL PATHS.

NOTE: THIS DRAWING IS APPLICABLE TO PWB 19267974 ONLY.

CONTROL  
DATA  
CANADA  
LTD

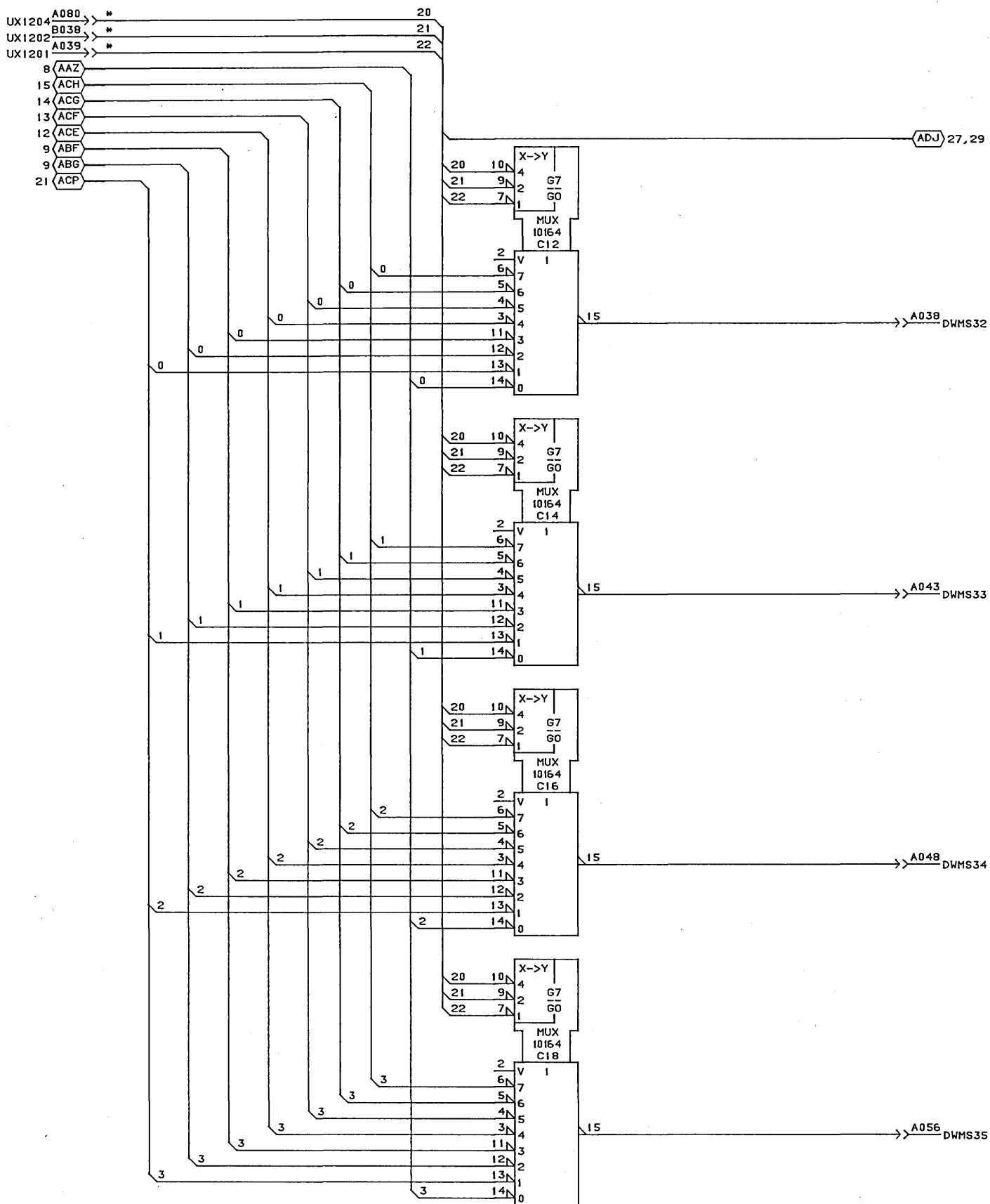
RAW PT1 CLOCK  
VAL FILES 2,3 AND RMA BITS  
MODULE ASSY 210 PAK  
TYPE: 1DW0

	C		A
03-APR-85	SHEET 25A		



\*\* SHORT





\* DO NOT TERMINATE

CONTROL  
DATA  
CANADA  
LTD

MODULE ASSY: 210 PAK  
TYPE: 1DW0

17-JAN-86

SHEET 28

C

A

28 (ADJ) -MAP IN RGTR 20-22 & READ MAP

15 (ACH) -ASSOC. MEMORY FILE 3

14 (ACG) -ASSOC. MEMORY FILE 2

13 (ACF) -ASSOC. MEMORY FILE 1

12 (ACE) -ASSOC. MEMORY FILE 0

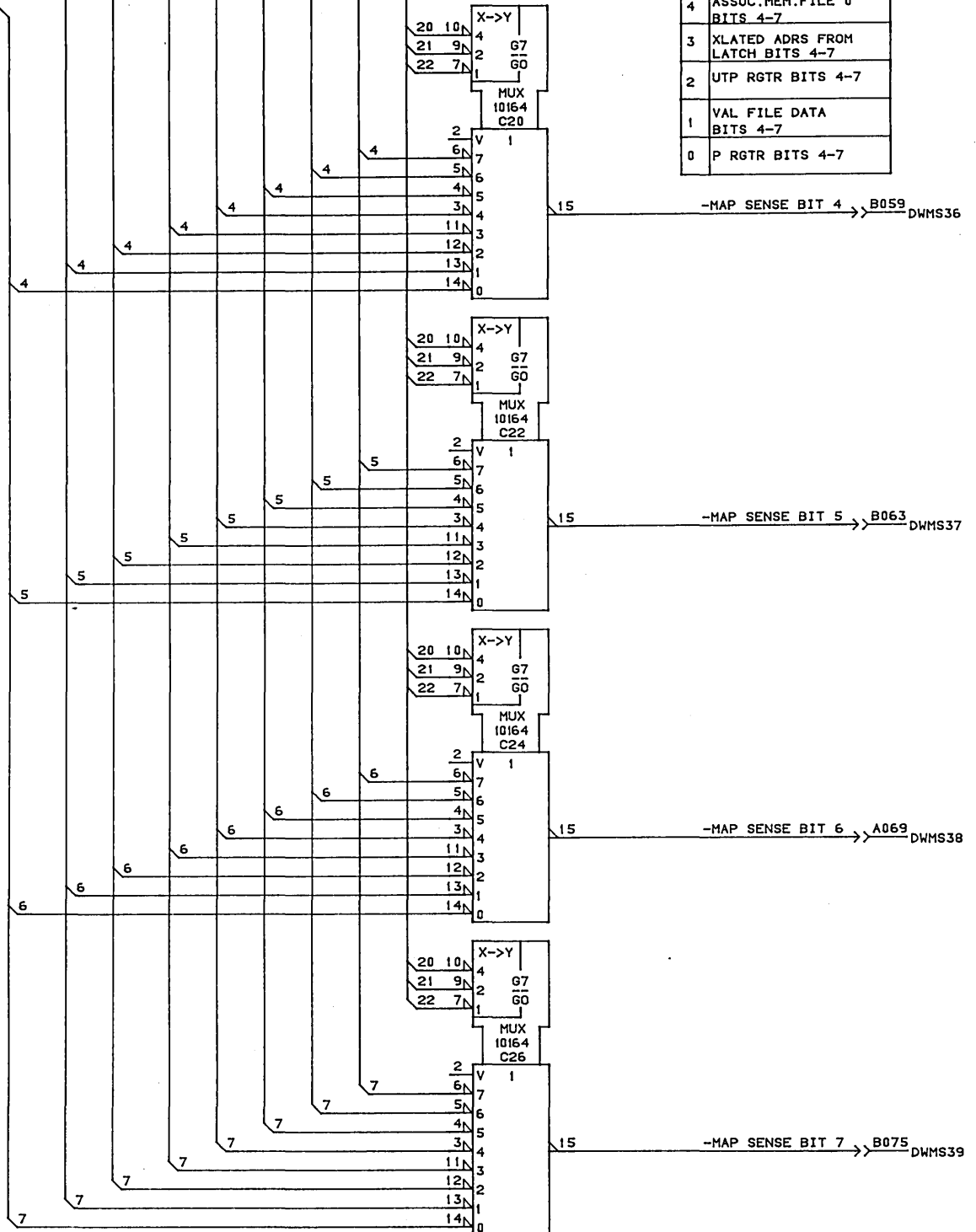
9 (ABF) -XLATED ADRS FROM LATCH

9 (ABH) -UTP RGTR BITS(4-7)

21 (ACP) -VAL FILE DATA(4-7)

8 (AAZ) -P RGTR(4-7)

7	ASSOC.MEM.FILE 3 BITS 4-7
6	ASSOC.MEM.FILE 2 BITS 4-7
5	ASSOC.MEM.FILE 1 BITS 4-7
4	ASSOC.MEM.FILE 0 BITS 4-7
3	XLATED ADRS FROM LATCH BITS 4-7
2	UTP RGTR BITS 4-7
1	VAL FILE DATA BITS 4-7
0	P RGTR BITS 4-7



CONTROL  
DATA  
CANADA  
LTD

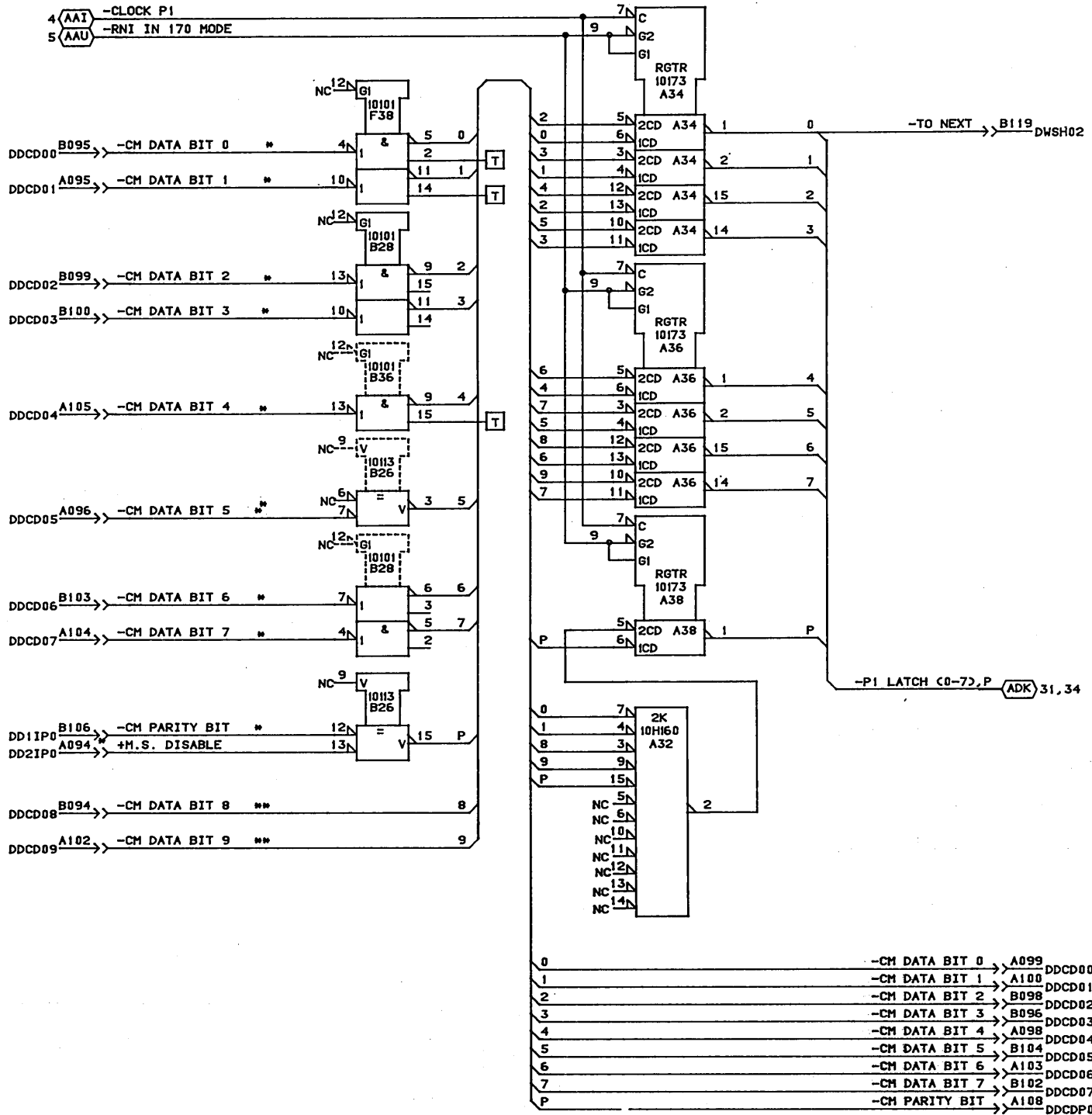
MAP SENSE MUX BITS  
(4-7)  
MODULE ASSY 210 PAK  
YPE: 1DHW

C

A

23-APR-85

SHEET 29



\* SHORT

\*\* DO NOT TERMINATE

2	CM DATA BITS (2-9)
1	CM DATA BITS (0-7, P)

CONTROL  
DATA  
CANADA  
LTD

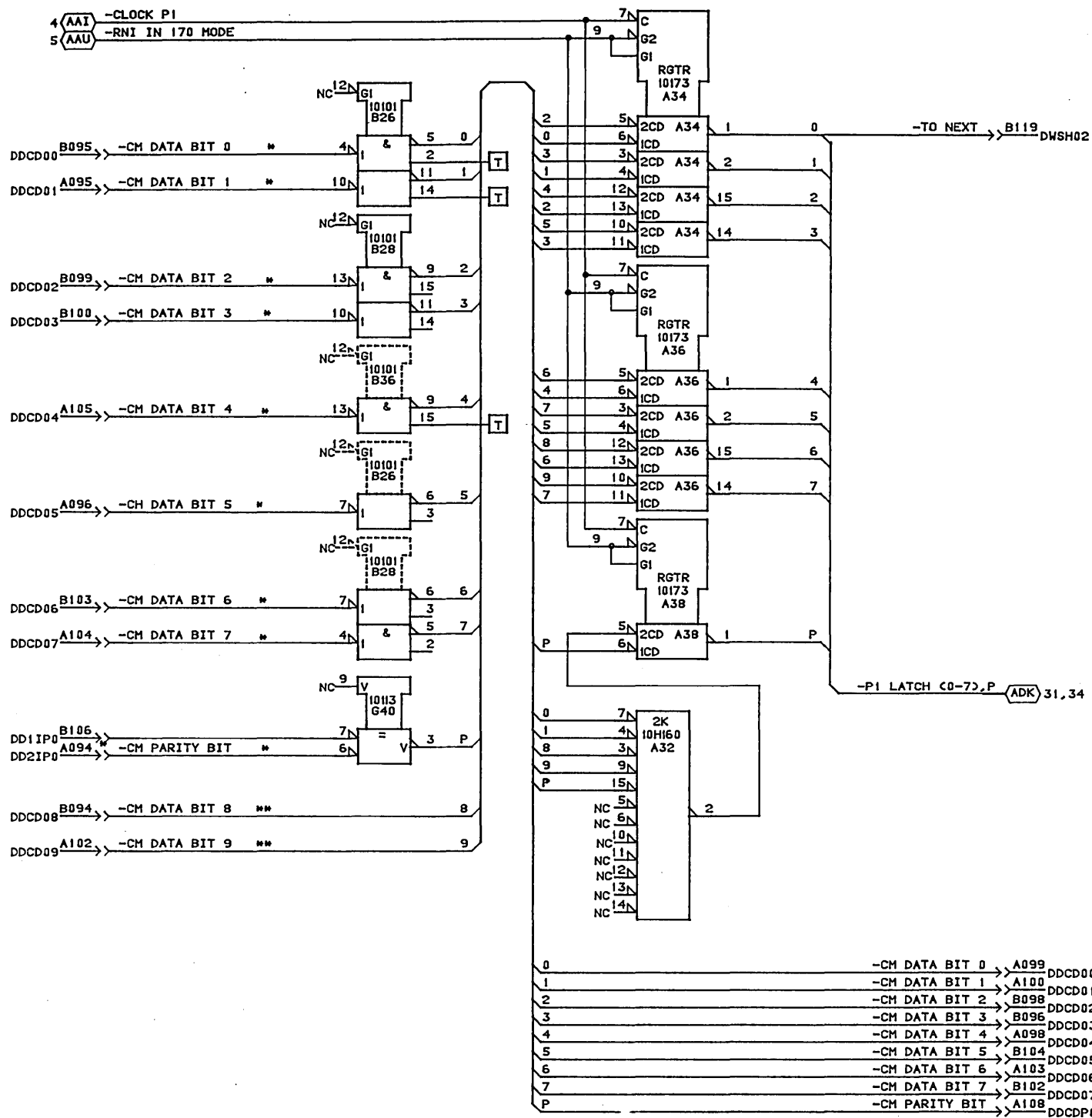
P1 LATCH & PARCEL ADJUST MUX FOR  
CY 170 MODE (SHIFT BY TWO)  
MODULE ASSY 210 PAK  
TYPE: 1DM0

03-APR-85

SHEET 30

A





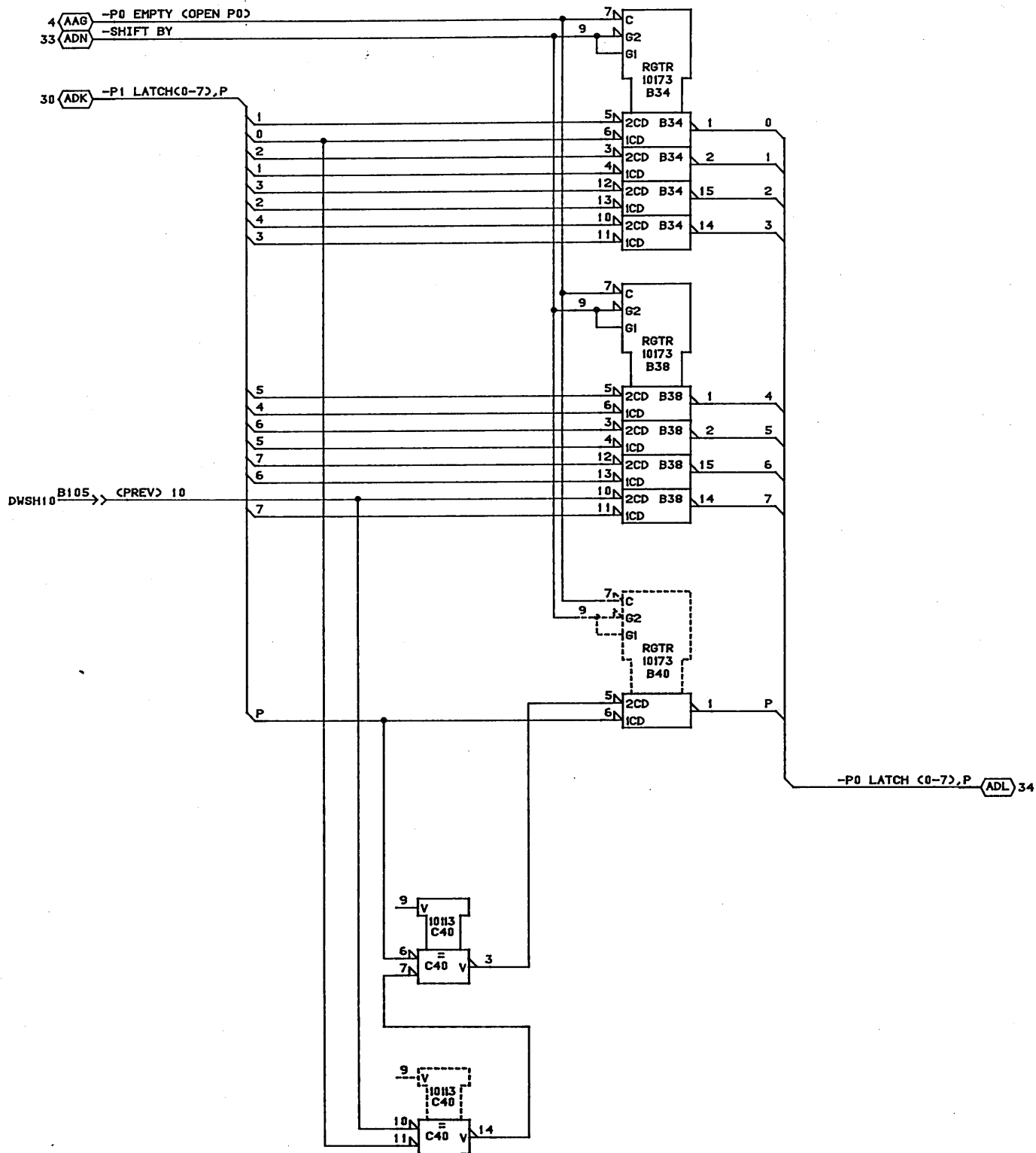
CONTROL  
DATA  
CANADA  
LTD

P1 LATCH & PARCEL ADJUST MUX FOR  
CY 170 MODE (SHIFT BY TWO)  
MODULE ASSY 210 PAK  
TYPE: 1DW0

03-APR-85

SHEET 30A

A

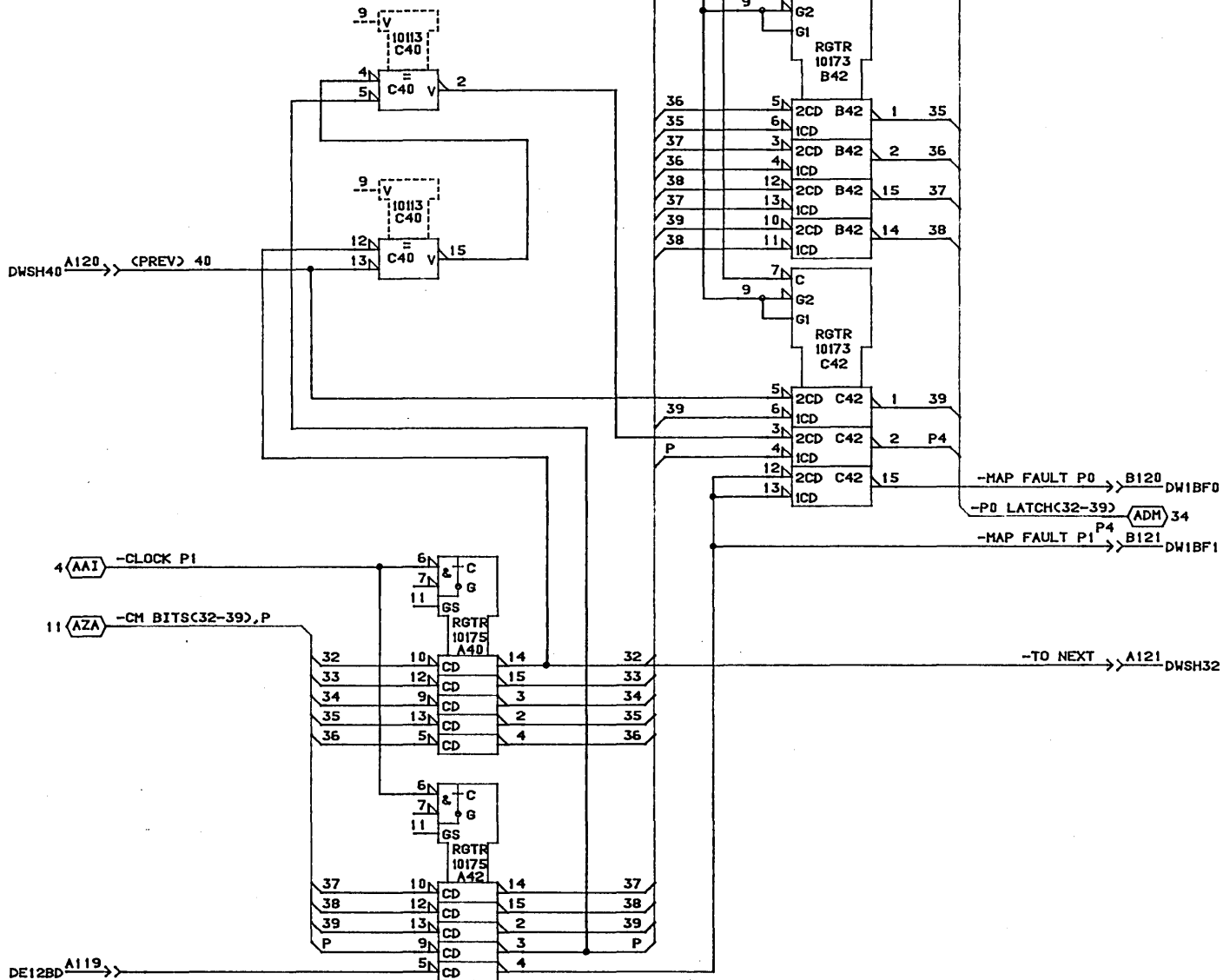


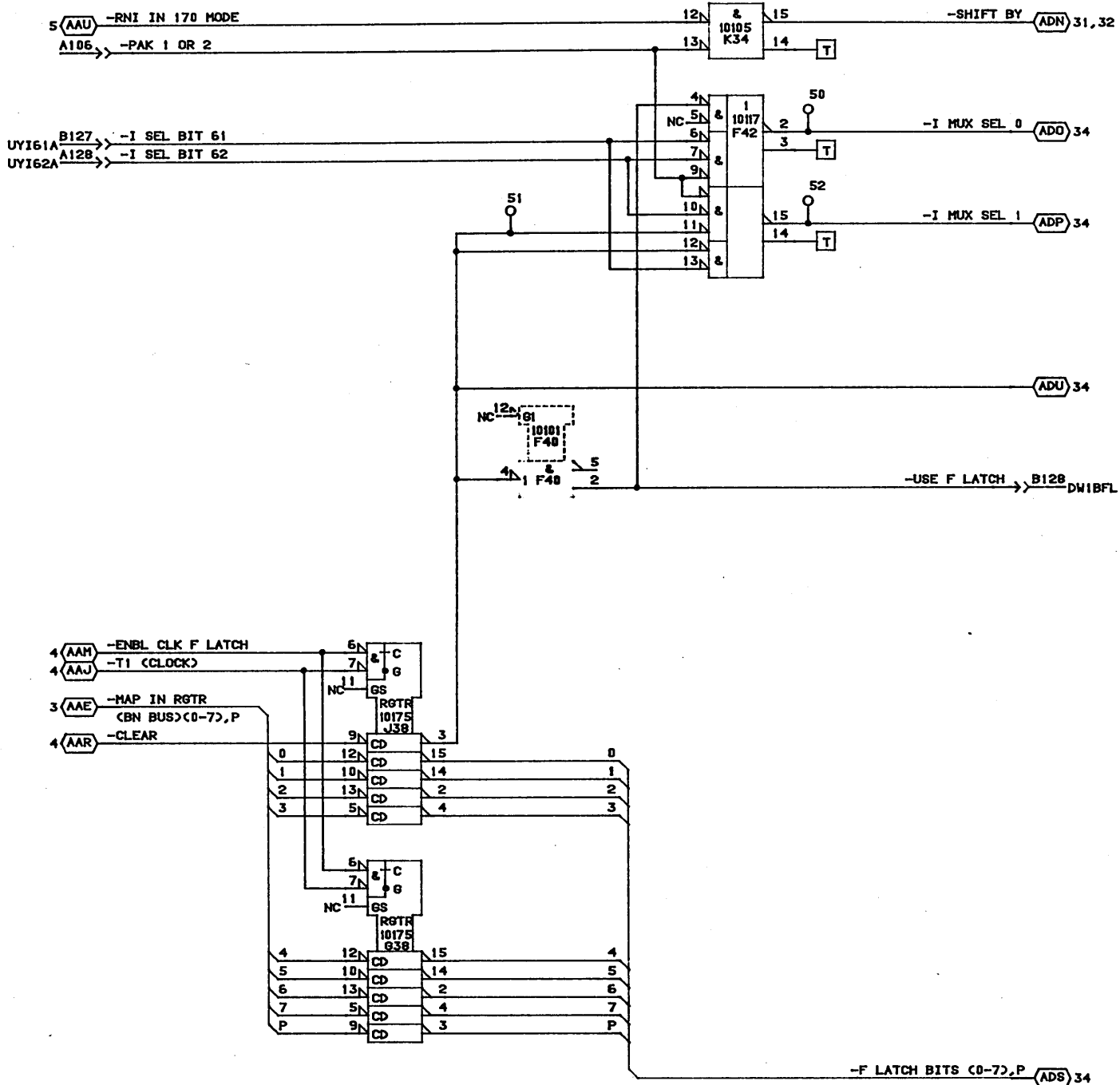
CONTROL  
DATA  
CANADA  
LTD

P0 LATCH & PARCEL MUX  
MODULE ASSY 210 PAK  
TYPE: 1DW0

	C		A
03-APR-85	SHEET 31		

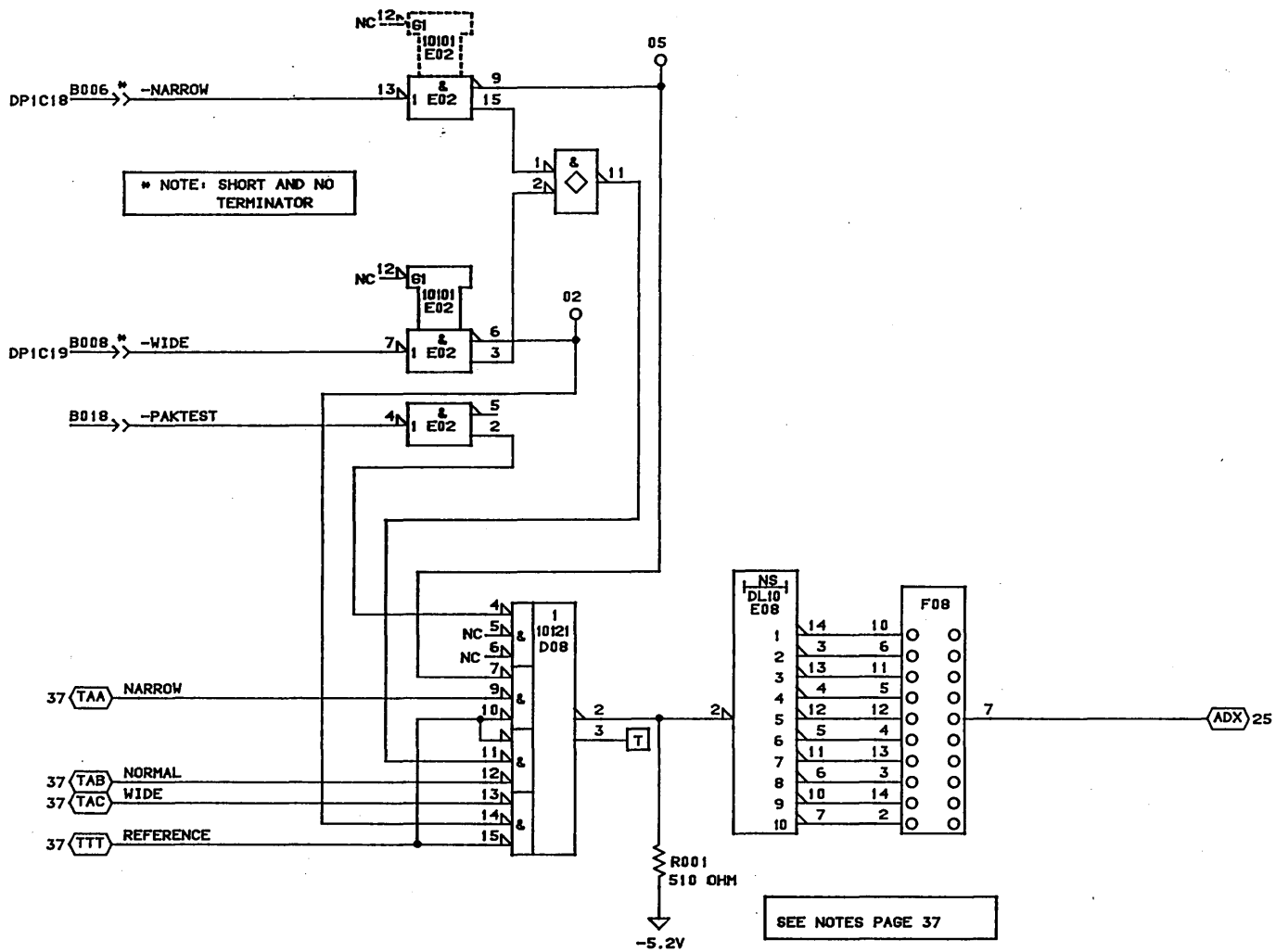
4 (AAG) -P0 EMPTY (OPEN P0)  
33 (ADN) -SHIFT BY

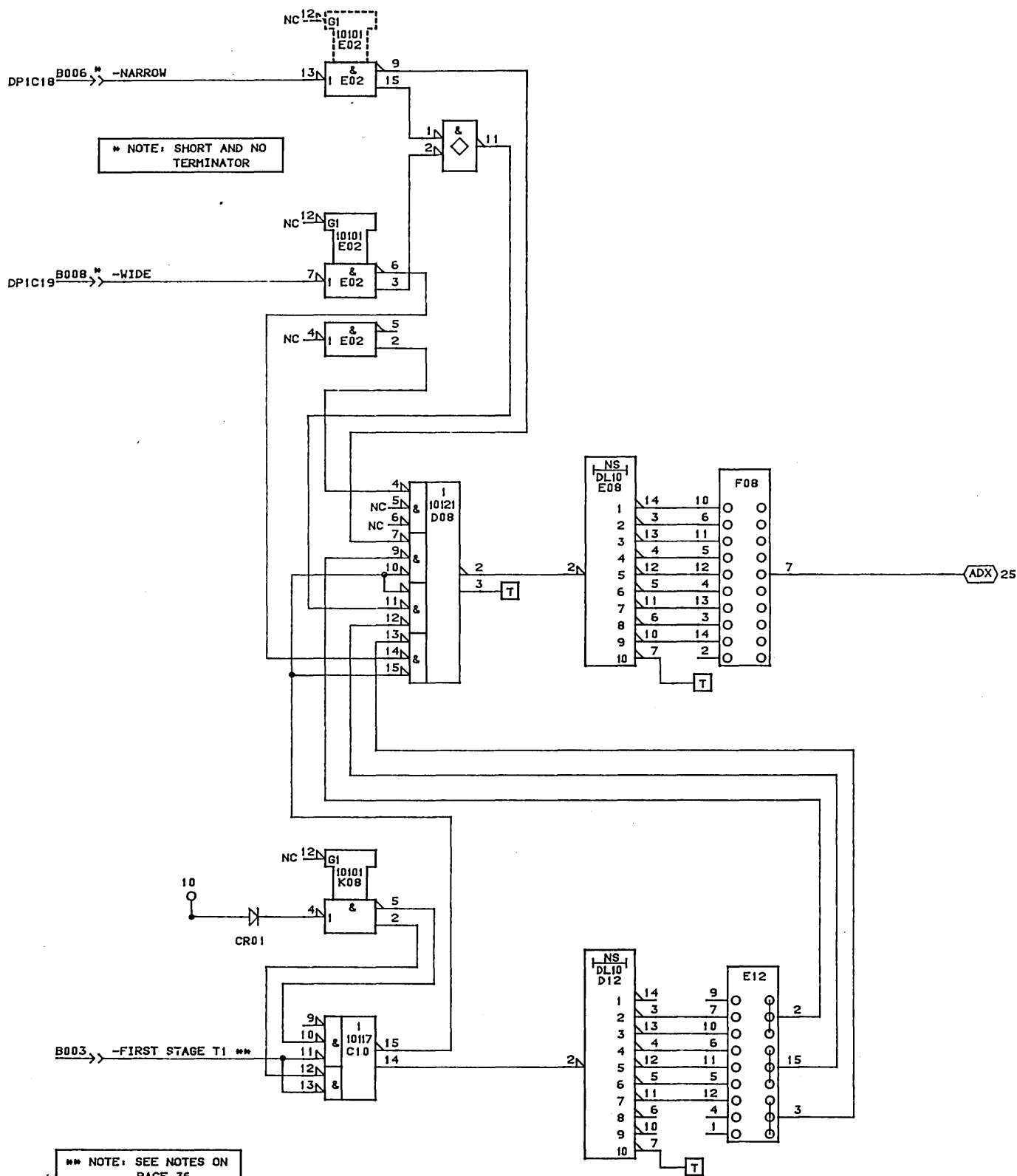





CONTROL DATA CANADA LTD	F LATCH		C		A
	MODULE ASSY 210 PAK	03-APR-85			
	TYPE: 1DW0		SHEET 33		







CONTROL  
DATA  
CANADA  
LTD

CPU CLOCK TUNING  
MODULE ASSY: 210 PAK  
TYPE: 1DW0

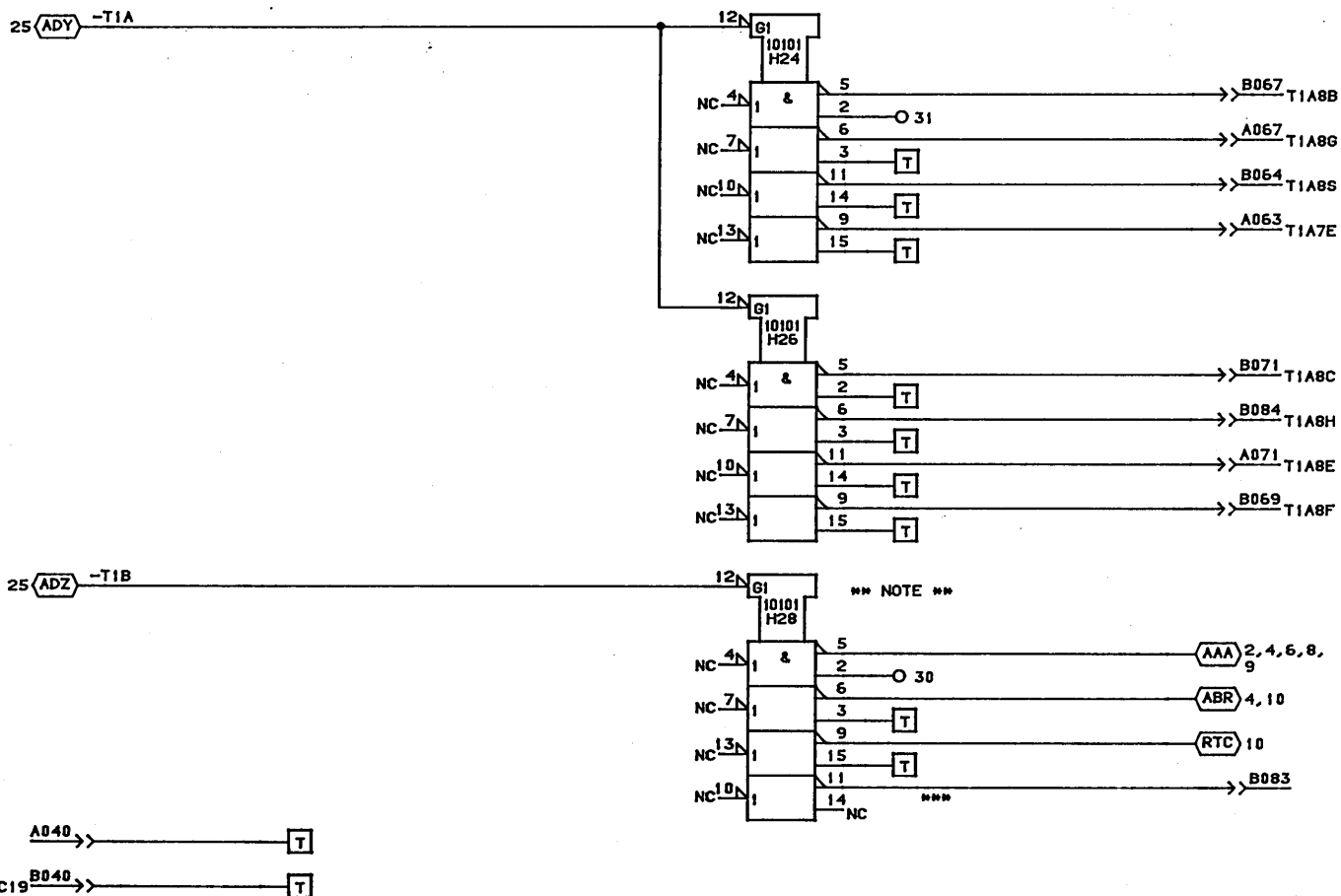
04-APR-85

SHEET 35A

C

I

A



NOTE FOR PAGE 25

FOIL LENGTH MUST BE ARRANGED SO THAT THE TOTAL LENGTH OF FOIL FROM ANY OUTPUT OF THIS 10110 TO ANY 10101 PLUS THE LENGTH FROM AN OUTPUT OF THAT 10101 TO A CONNECTOR PIN MUST BE THE SAME (+/- 1in) FOR ALL PATHS

NOTE FOR PAGE 35

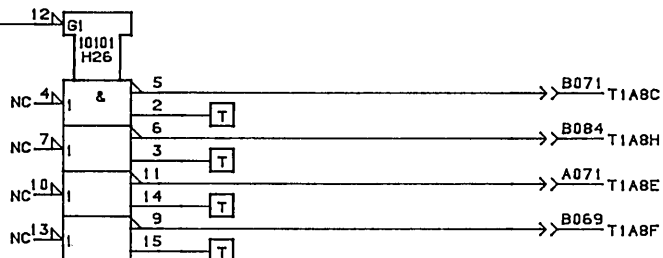
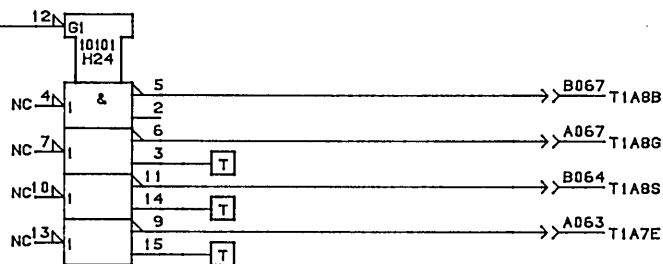
FOIL LENGTH FROM THE CONNECTOR PIN TO PIN 13 OF THE 10117 SHOULD BE ABOUT 8 in. (+/- 3in.) FOIL LENGTH FROM PIN 13 TO PIN 11 MUST BE 28 INCHES. (+/- 1in.)

\*\*\* NOTE \*\*\*

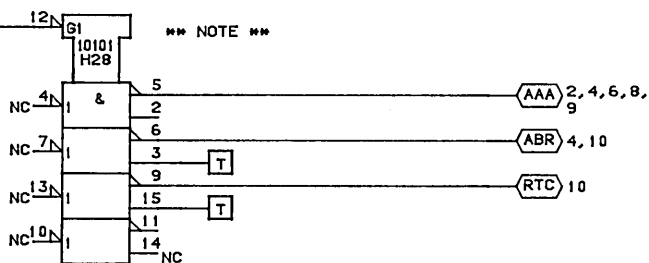
FOILS FROM THIS 10101 TO THE FIRST INPUT IN EACH NET MUST BE 28in. TRUE LENGTH.



25 (ADY) -T1A



25 (ADZ) -T1B



\*\*\* NOTE \*\*\*

A040 → T

DP1C19 B040 → T

\*\*\* NOTE \*\*\*

FOILS FROM THIS 10101  
TO THE FIRST INPUT IN  
EACH NET MUST BE 28in.  
TRUE LENGTH.

NOTE: THIS DRAWING  
IS APPLICABLE TO  
PWB 19267974 ONLY.

CONTROL  
DATA  
CANADA  
LTD

CPU CLOCKS 2ND STAGE FANOUTS  
MODULE ASSY:210 PAK  
TYPE: 1DW0

12-JUN-86

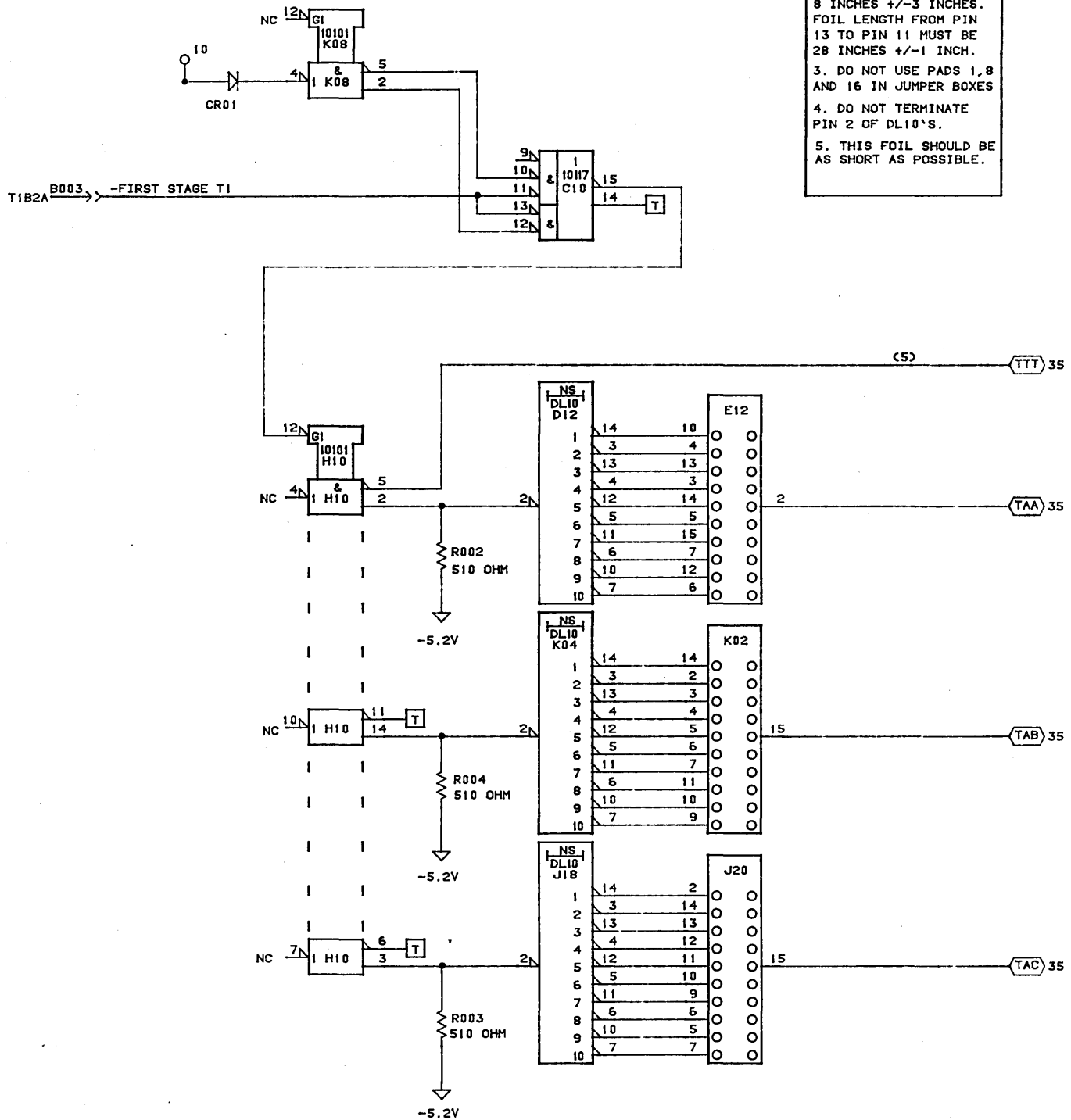
SHEET 36A

C

B

# NOTES FOR PAGES 35037

1. PATHS FROM 101'S THROUGH DL10'S TO THE 10121 MUST BE ALL THE SAME LENGTH WITHIN ONE INCH.
2. FOIL LENGTH FROM THE CONNECTOR PIN B003 TO PIN 13 OF THE 10117 SHOULD BE ABOUT 8 INCHES +/- 3 INCHES. FOIL LENGTH FROM PIN 13 TO PIN 11 MUST BE 28 INCHES +/- 1 INCH.
3. DO NOT USE PADS 1, 8 AND 16 IN JUMPER BOXES
4. DO NOT TERMINATE PIN 2 OF DL10'S.
5. THIS FOIL SHOULD BE AS SHORT AS POSSIBLE.



NOTE: THIS DRAWING IS  
APPLICABLE ONLY TO  
PWB 19268982

CONTROL  
DATA  
CANADA  
LTD

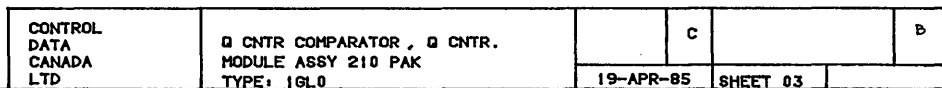
STAGE 1 CLOCK TUNING  
MODULE ASSY: 210 PAK  
TYPE: 1DW0

03-APR-85

SHEET 37

A

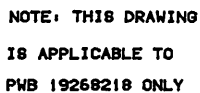






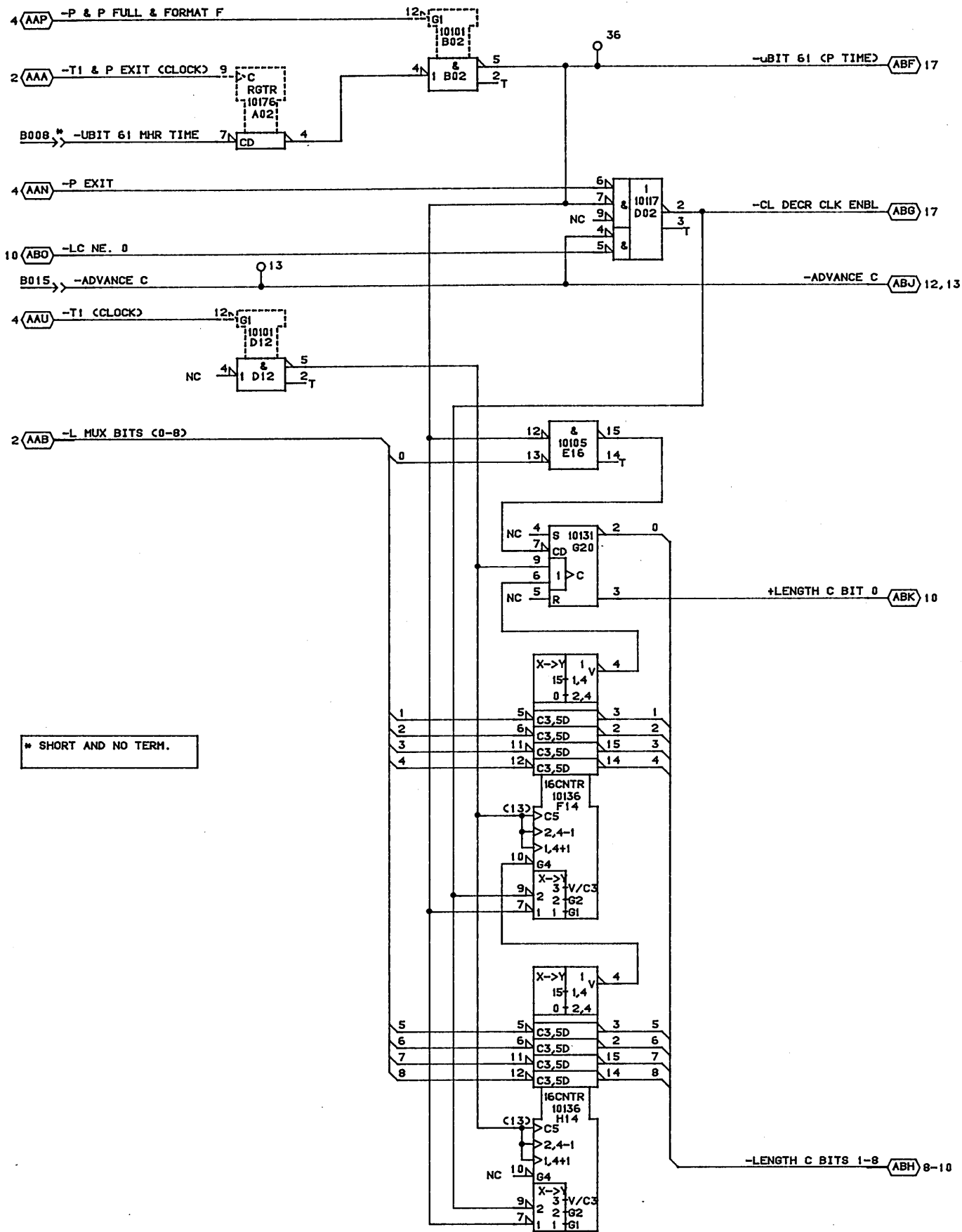






	C		B
19-APR-85	SHEET 06A		





CONTROL  
DATA  
CANADA  
LTD

C STREAM BYTE LENGTH  
DCDR AND CONTROL  
MODULE ASSY - 210 PAK  
TYPE: 1GL0

19-APR-85

SHEET 07

8



14 (ACD) - YKW MUX SEL BITS (0-2,4-6)

4 (AAX) - LENGTH J BITS 5-8

5 (ABC) - LENGTH K BITS 5-8

7 (ABH) - LENGTH C BITS 5-8

2 (AAB) - L MUX BITS 5-8

25 (AEC) - LIS WORD LENGTH BITS 2-5

B052 -> - LSM BIT 2

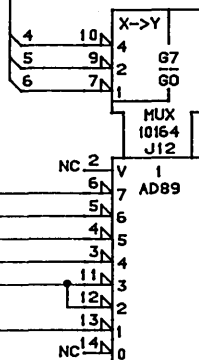
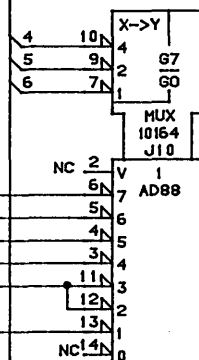
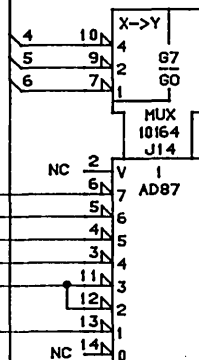
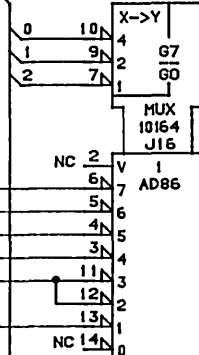
A046 -> - LSM BIT 3

B029 -> - LSM BIT 4

A039 -> - LSM BIT 5

LSM - LOAD OR  
STORE  
MULTIPLE  
LENGTH

YKW MUX



YKW MUX SELECTS	
7	LENGTH J BITS 5-8
6	LENGTH K BITS 5-8
5	LENGTH C BITS 5-8
4	L MUX BITS 5-8
3	LSM BIT
2	LSM BIT
1	LIS WORD LENGTH BITS 2-5
0	NO CONNECTION

- YKW MUX BITS 5-8 (ABN) 15, 16

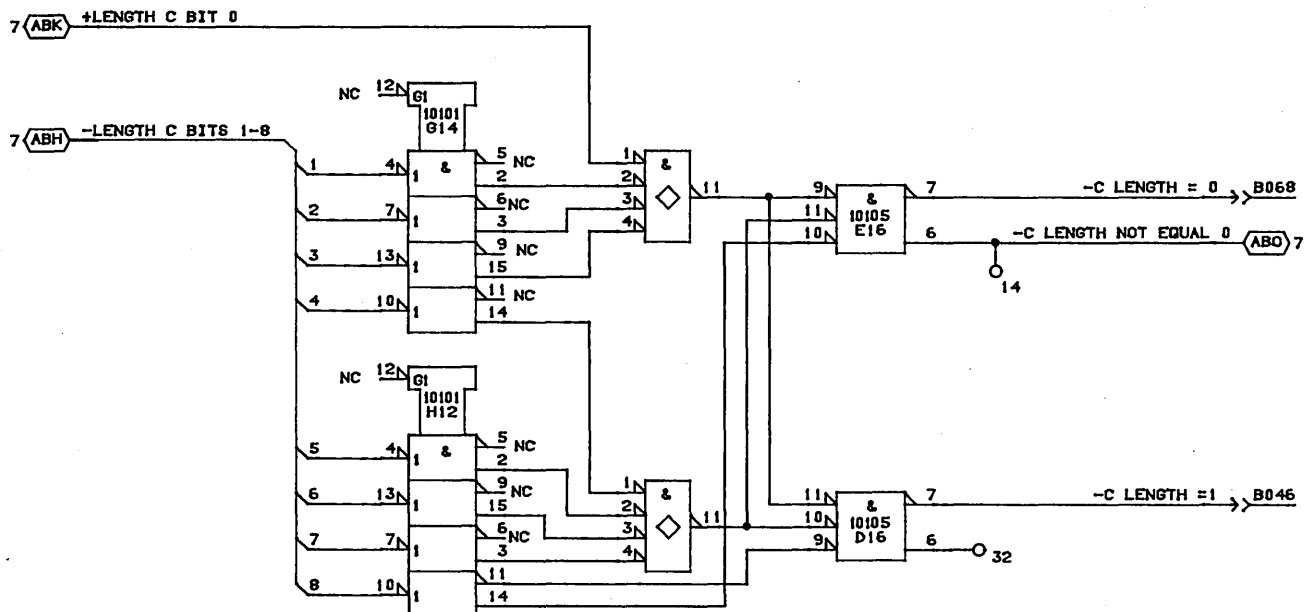
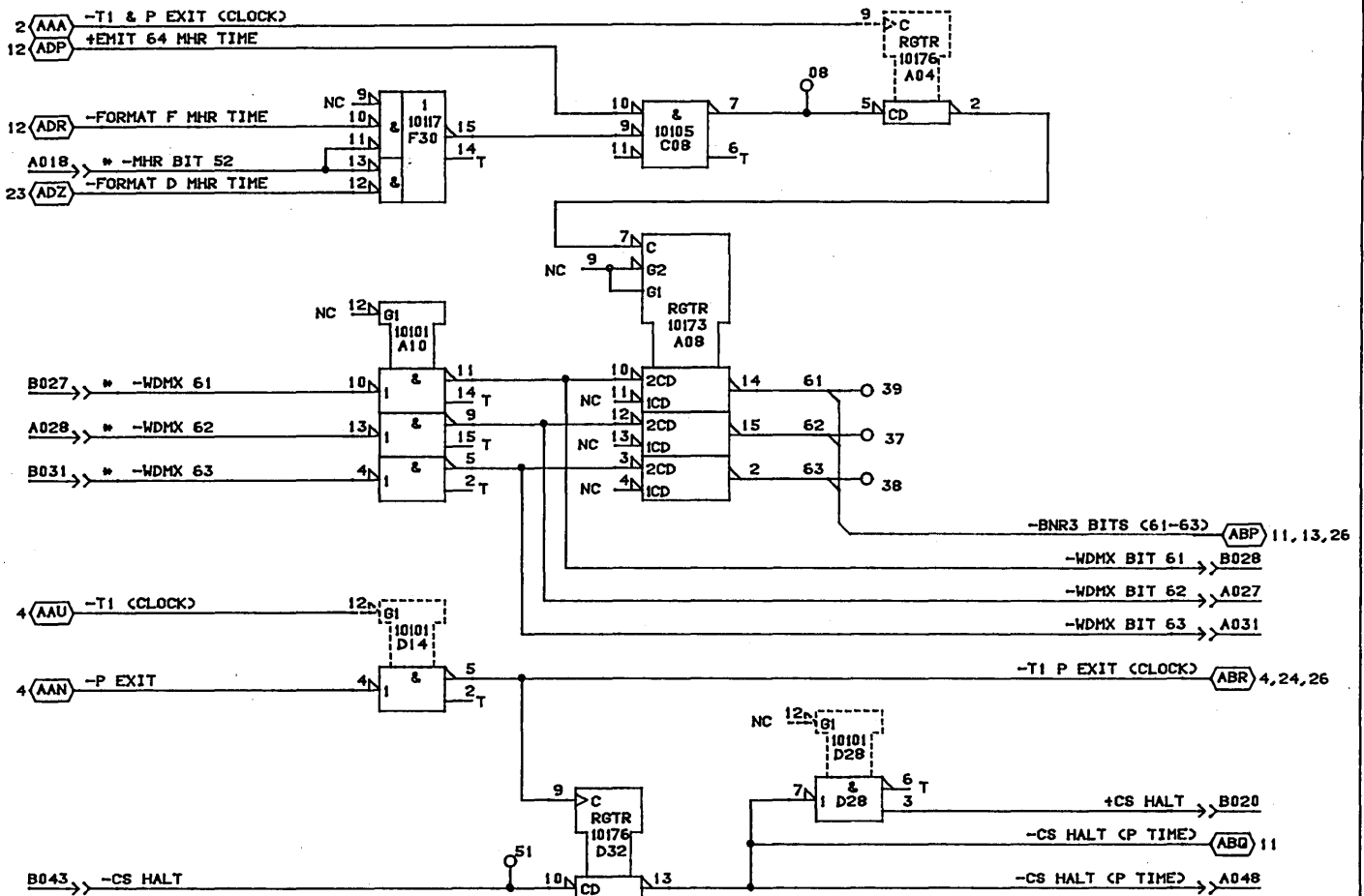
CONTROL  
DATA  
CANADA  
LTD

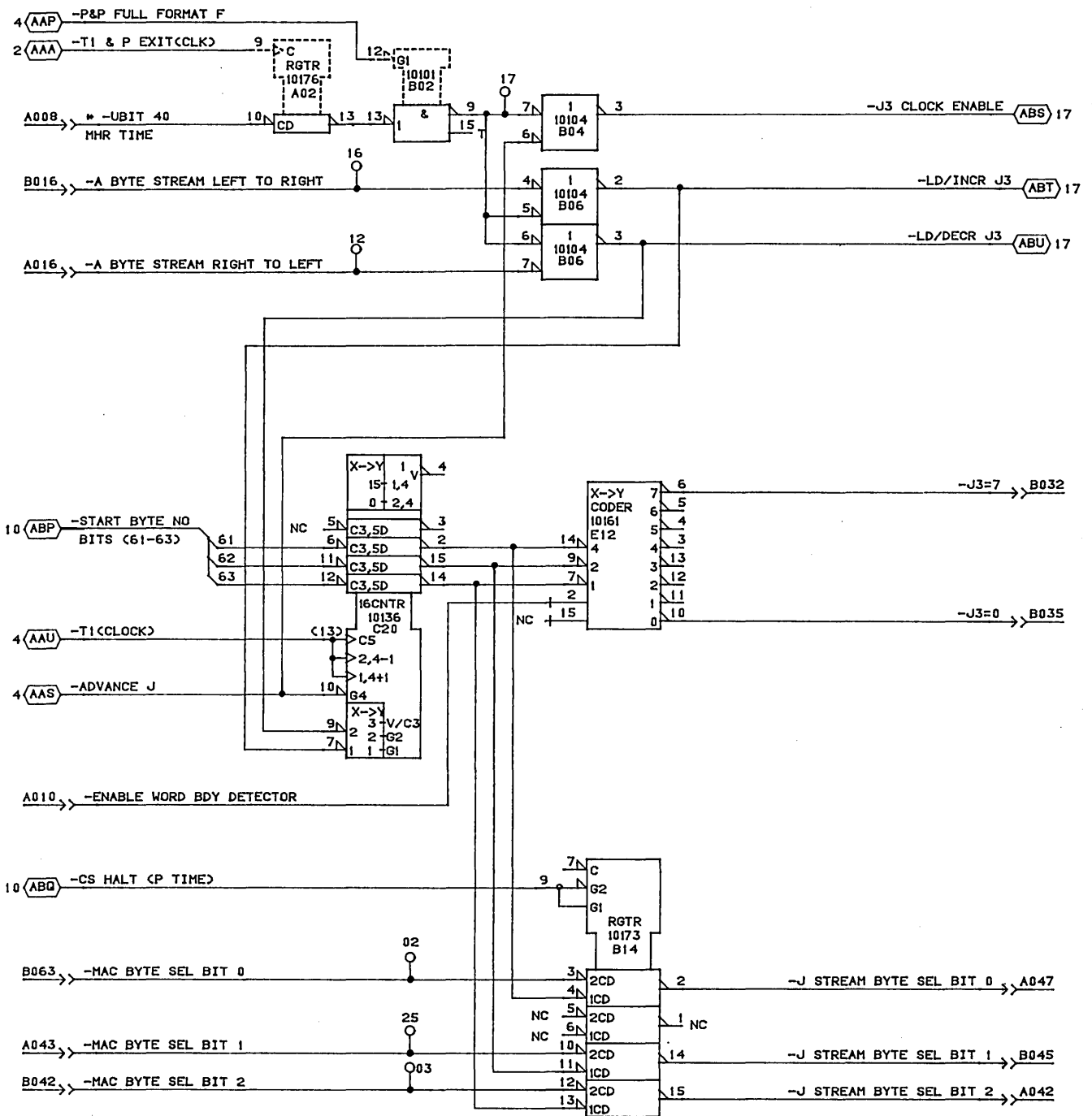
YKW MUX  
MODULE ASSY - 210 PAK  
TYPE: 1GL0

19-APR-85

SHEET 09

B





\* SHORT AND DO NOT  
TERMINATE

CONTROL  
DATA  
CANADA  
LTD

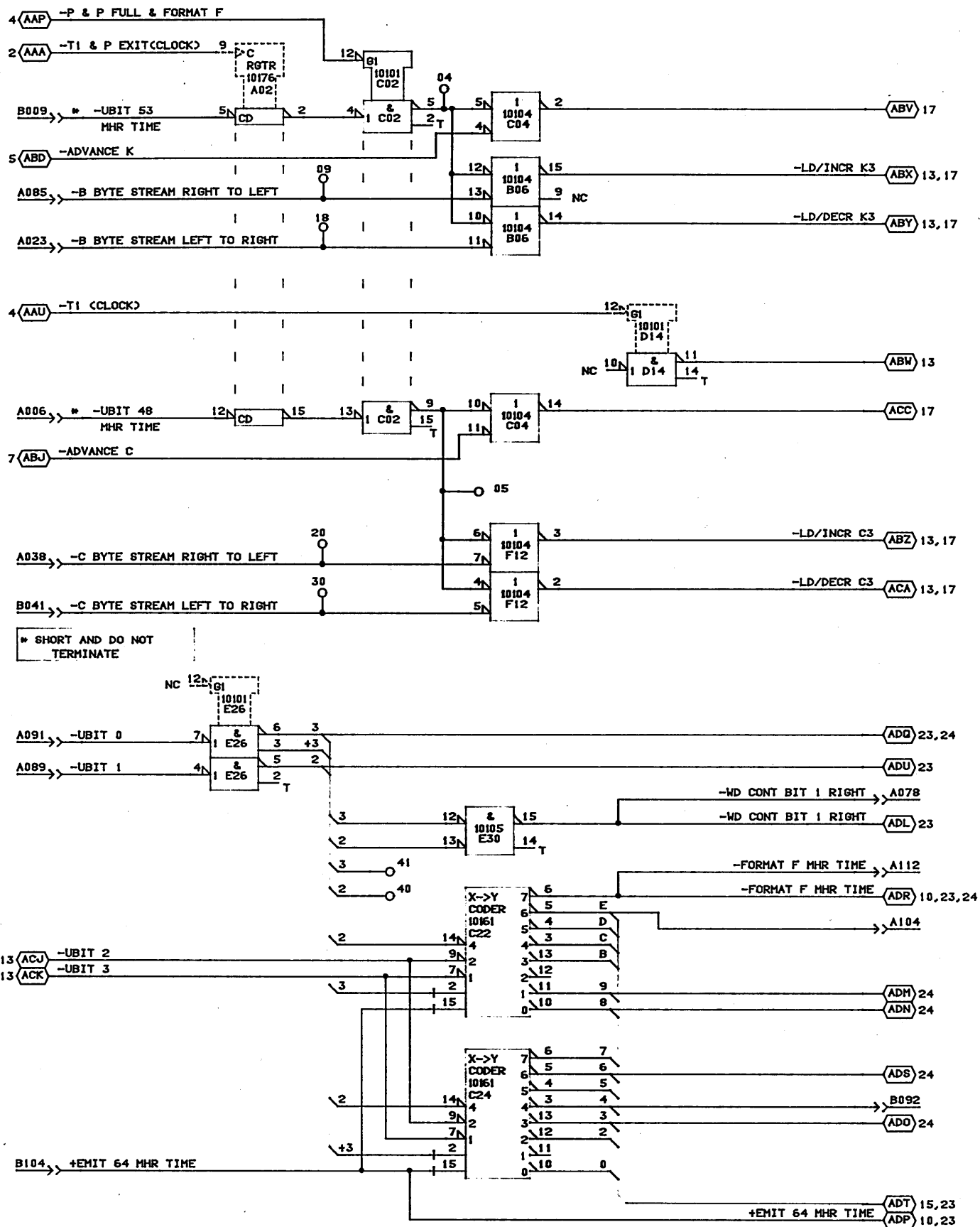
J STREAM BYTE SEL BITS 0-2  
MODULE ASSY:210 PAK  
TYPE: IGL0

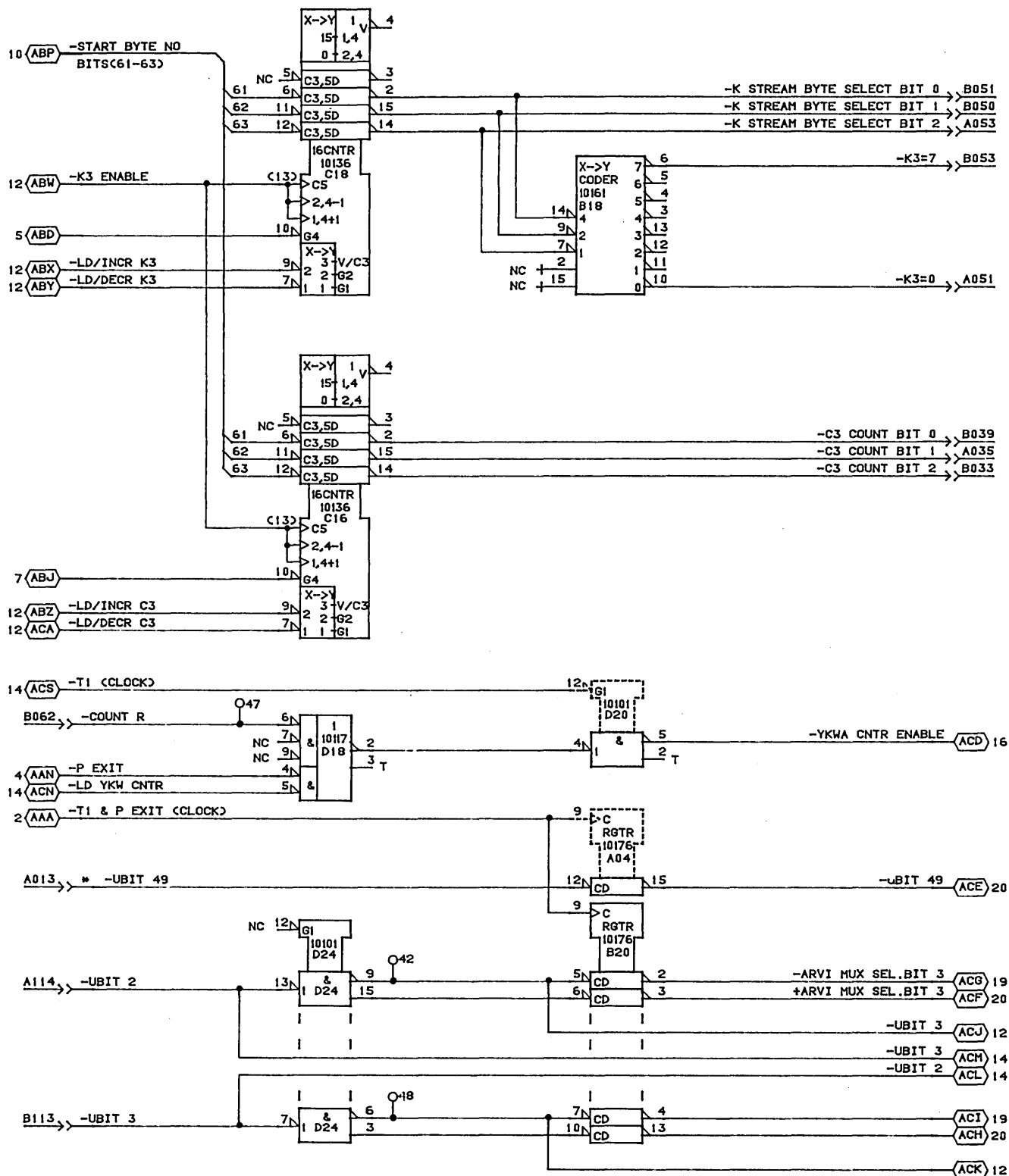
C

B

19-APR-85

SHEET 11





CONTROL  
DATA  
CANADA  
LTD

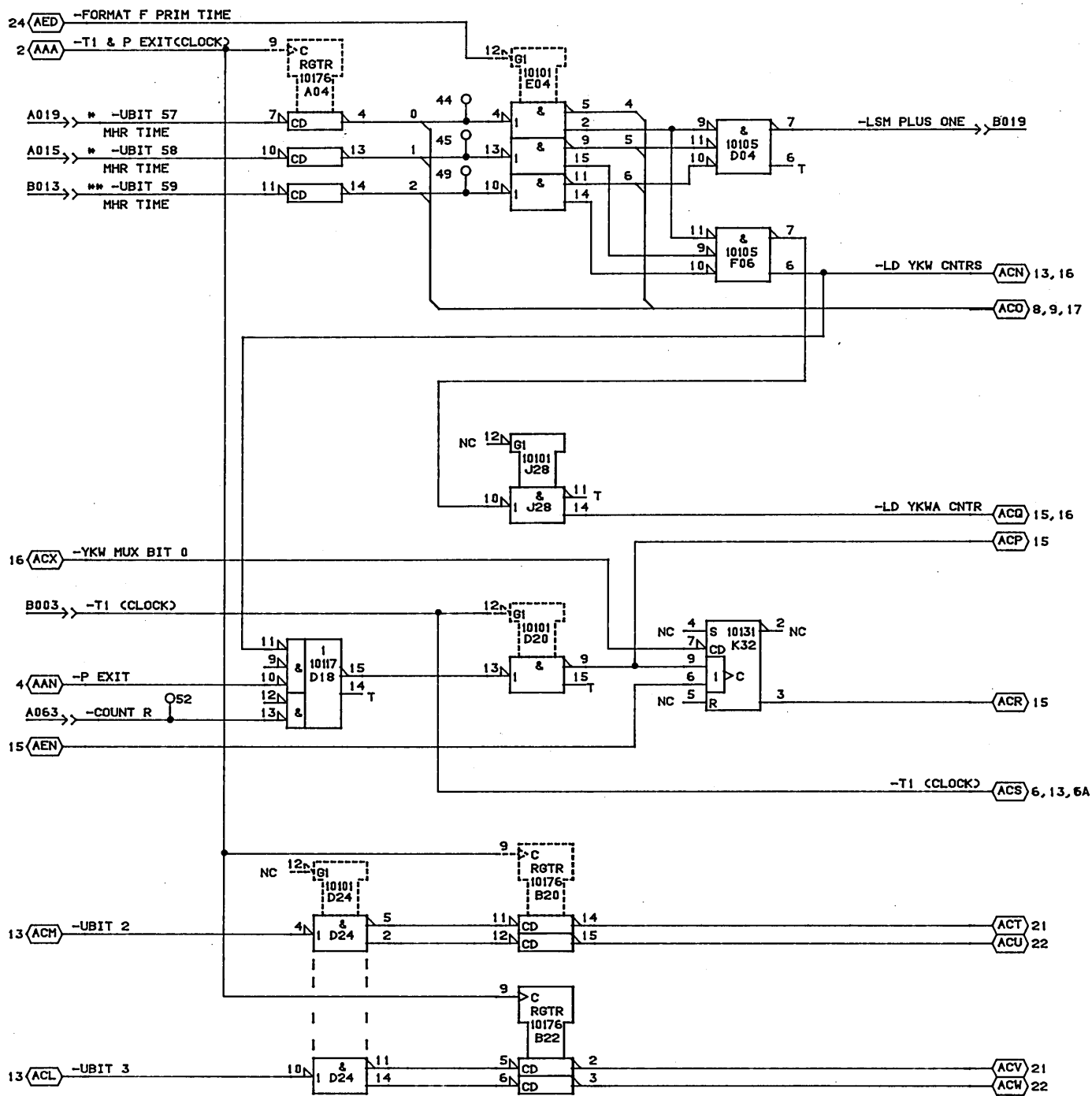
C3 COUNT BIT 0-3  
MODULE ASSY:210 PAK  
TYPE: 1GL0

C

B

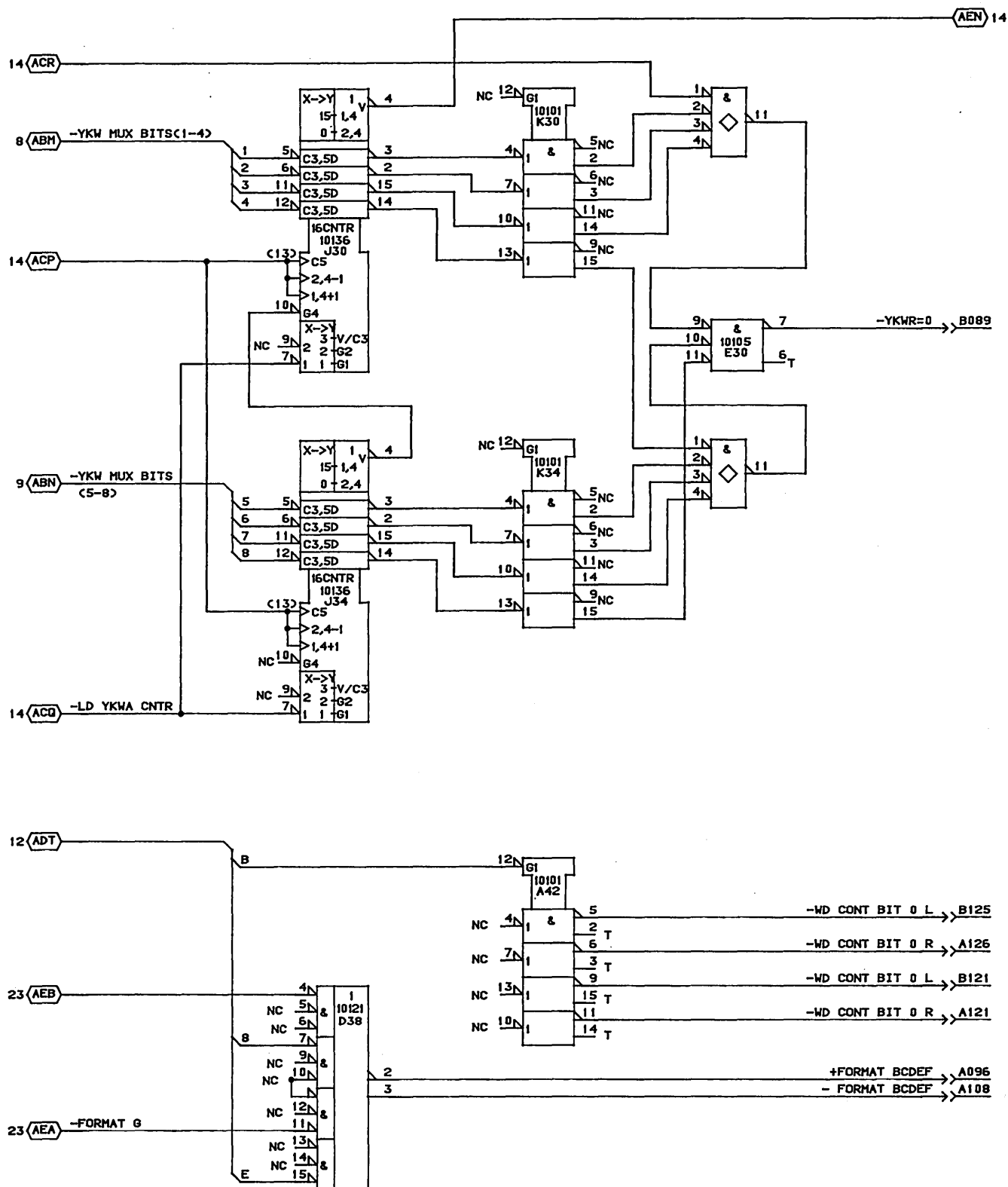
19-APR-85

SHEET 13



\* SHORT





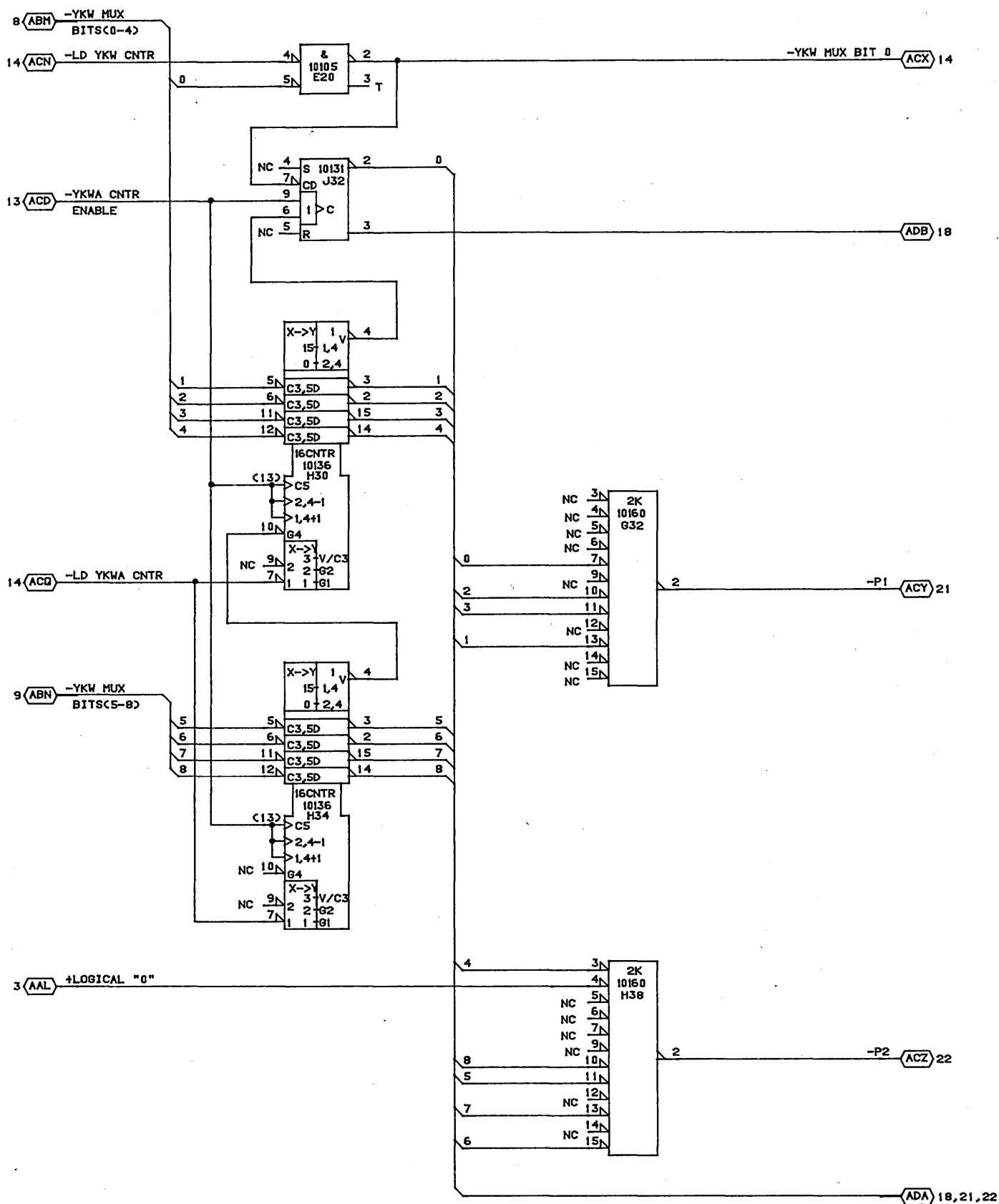
CONTROL  
DATA  
CANADA  
LTD

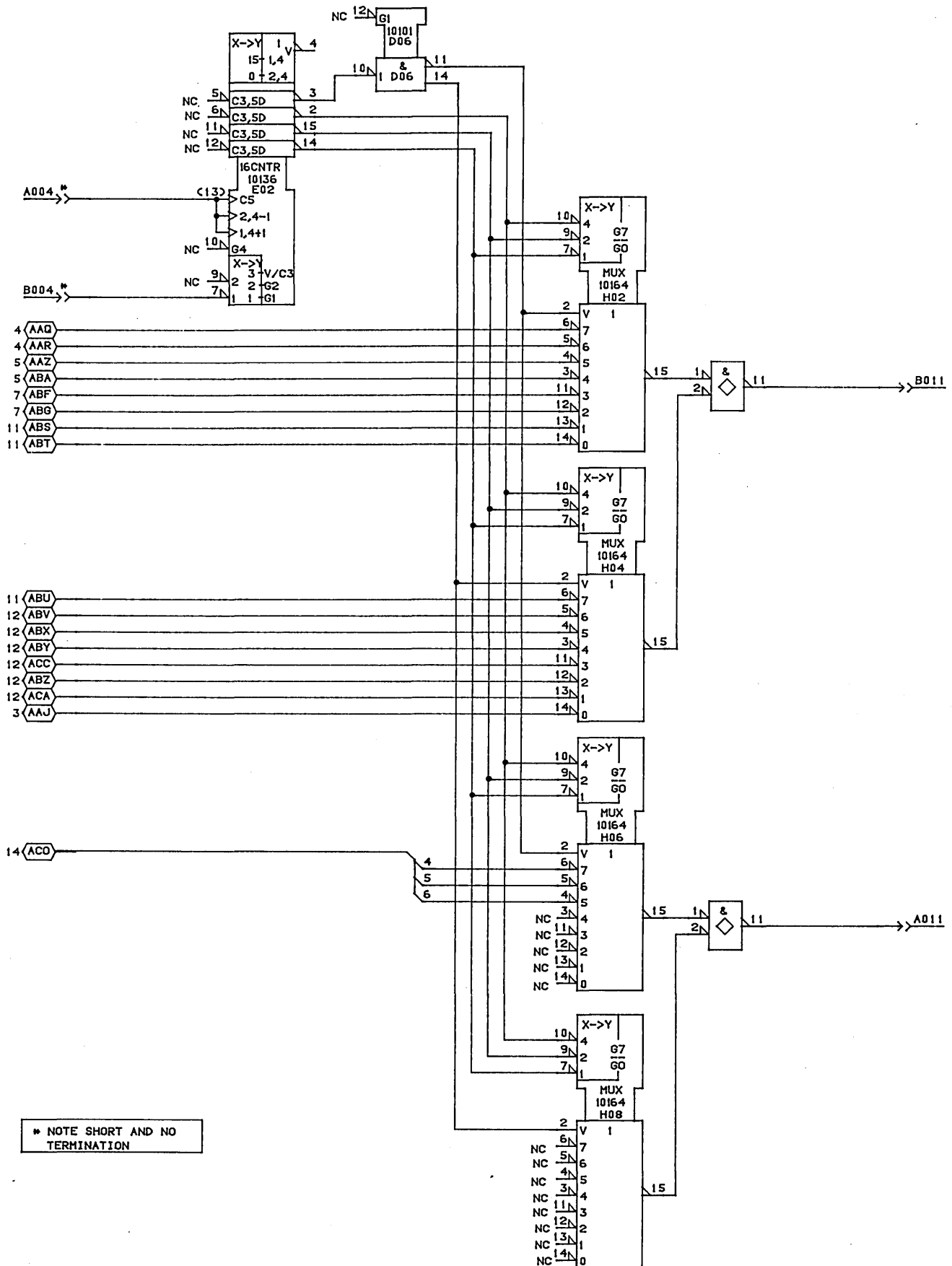
YKW CNTR  
MODULE ASSY: 210 PAK  
TYPE: 16L0

19-APR-85

SHEET 15

B

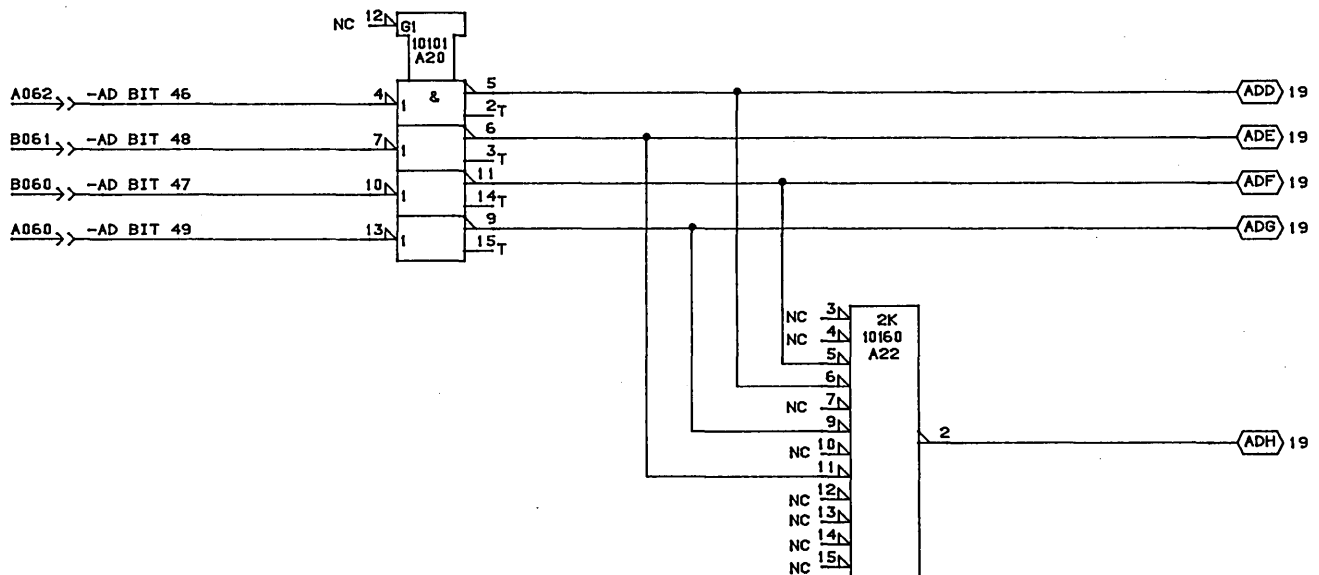
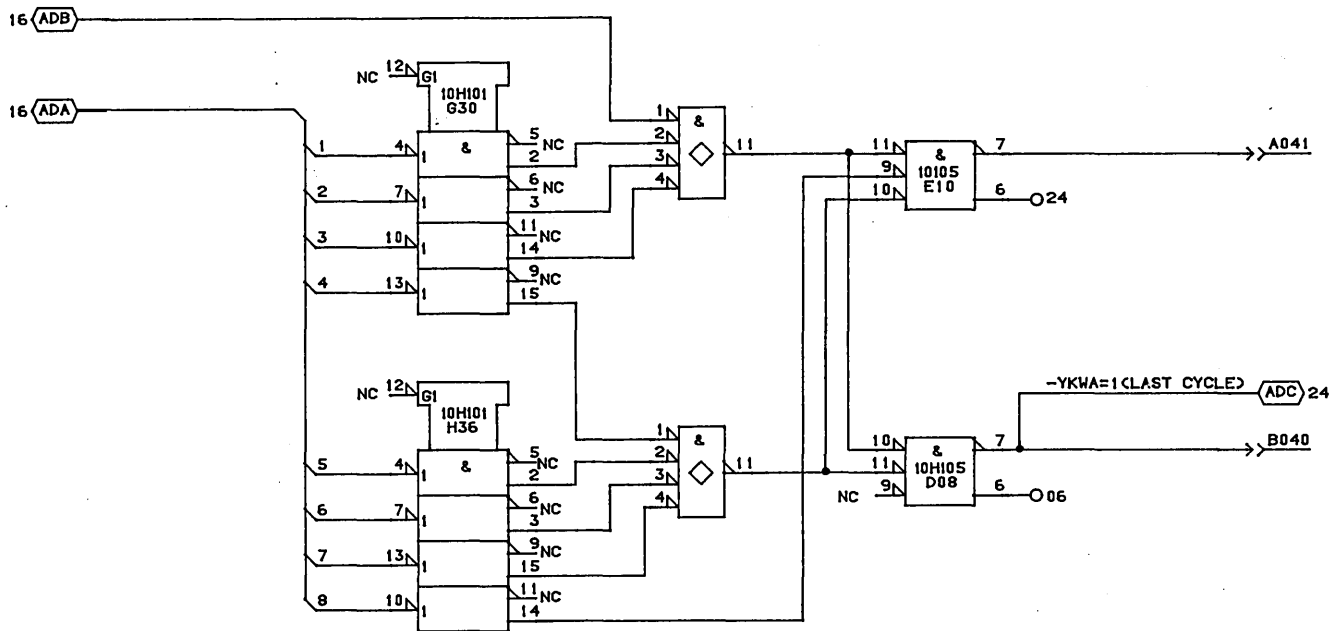




CONTROL  
DATA  
CANADA  
LTD

MAINTENANCE SCAN  
210 PAK ASSY  
TYPE: 1GL0

	C		B
19-APR-85	SHEET 17		



CONTROL  
DATA  
CANADA  
LTD

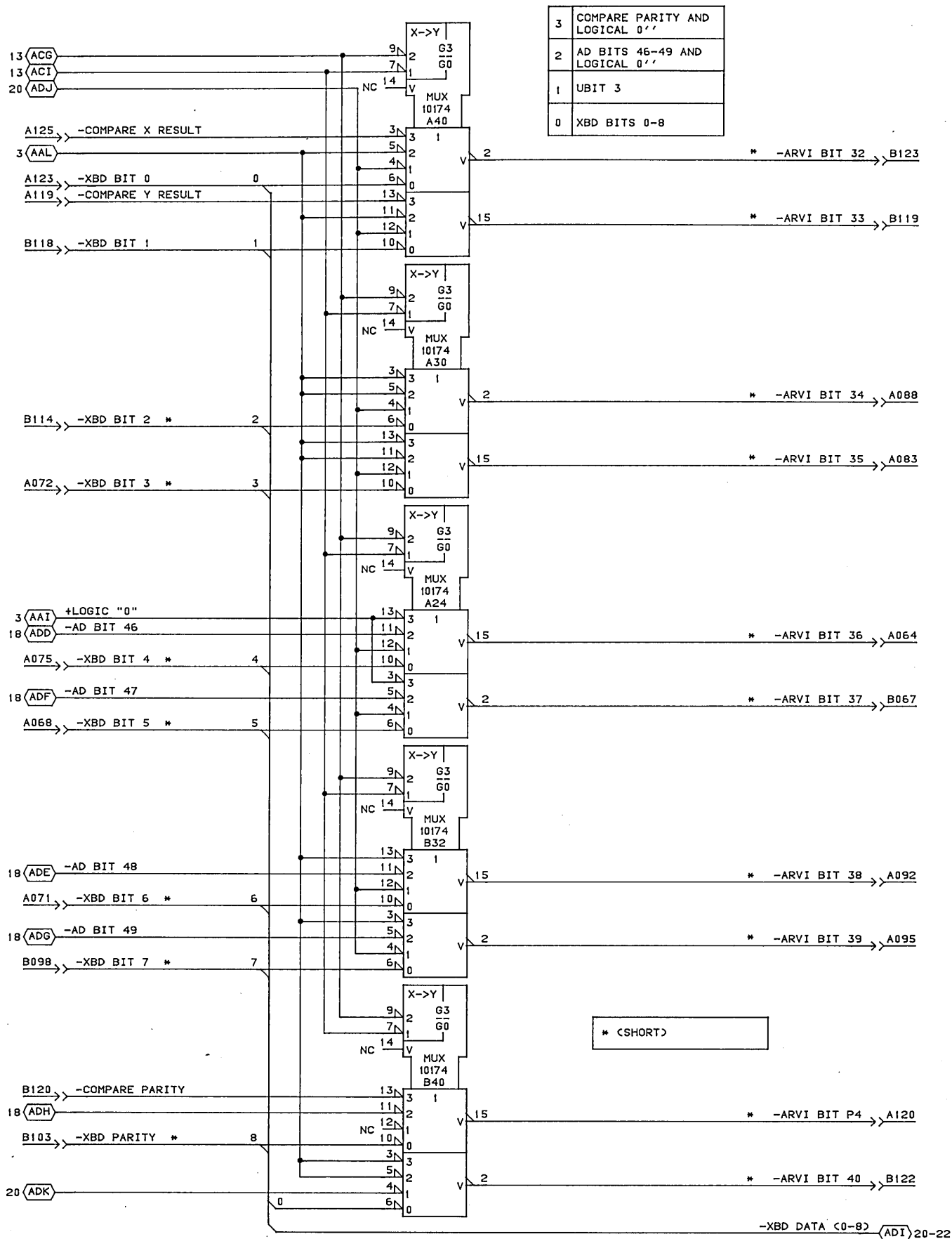
MODULE ASSY 210 PAK  
TYPE: 1GL0

19-APR-85

SHEET 18

C

B



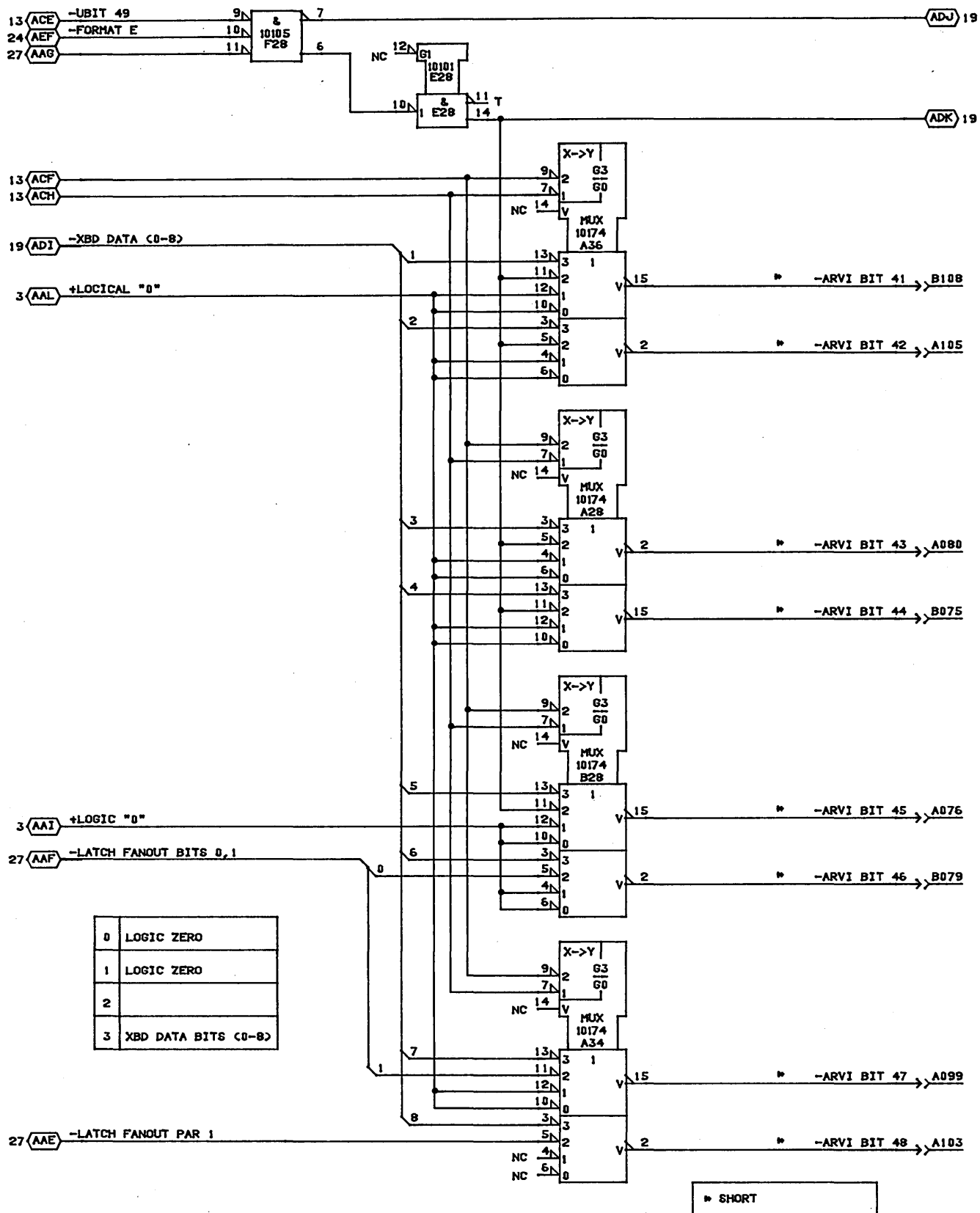
CONTROL  
DATA  
CANADA  
LTD

AVRI 1 MUX  
BITS <32-40, P4>  
210 PAK ASSY  
TYPE: 1GL0

03-MAR-86

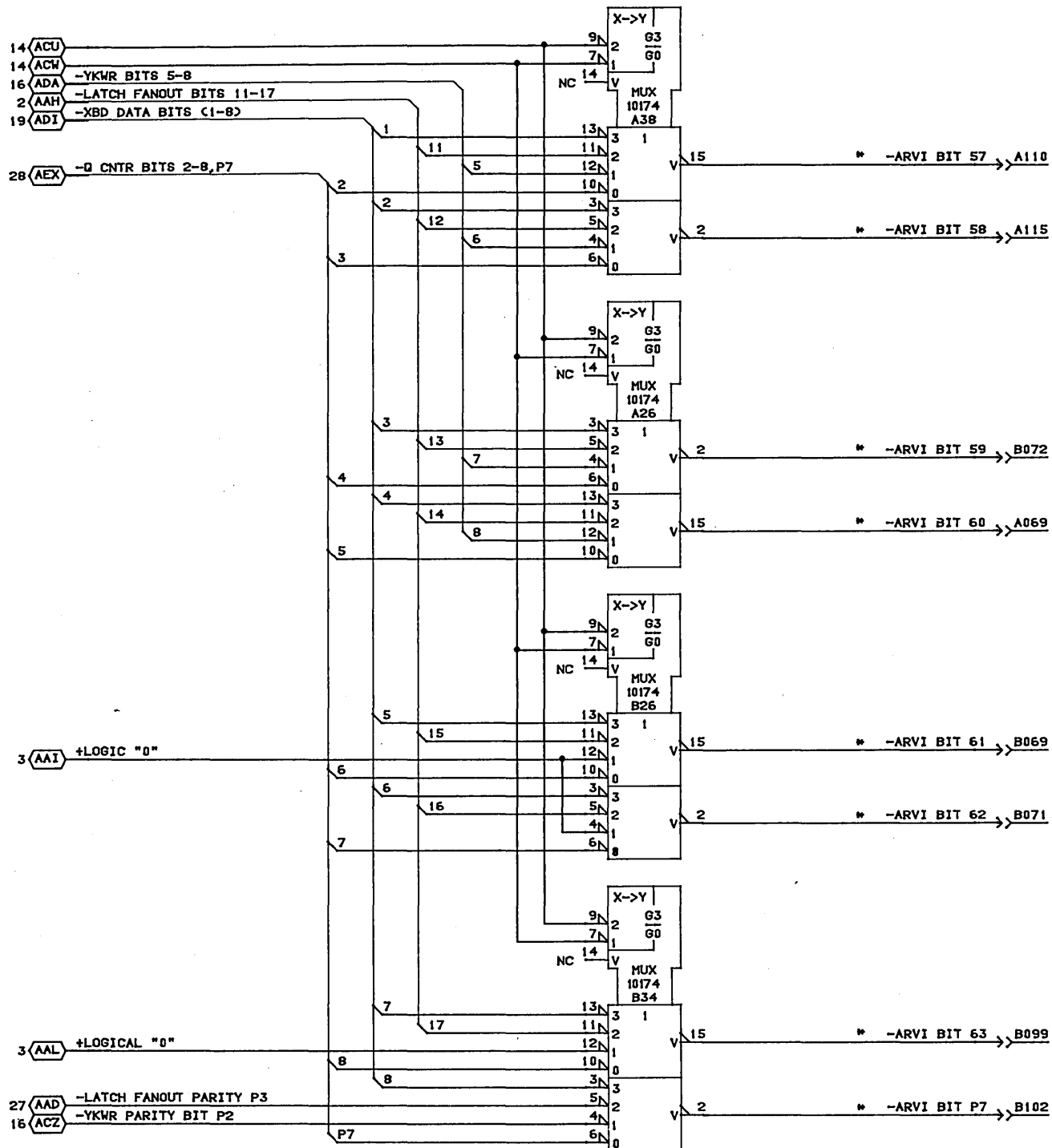
SHEET 19

C





3	XBD DATA BITS<1-8>
2	LATCH FANOUT BITS 11-17,P3
1	YKWR BITS 5-8
0	Q CNTR BITS 2-8,P7



\* SHORT

CONTROL  
DATA  
CANADA  
LTD

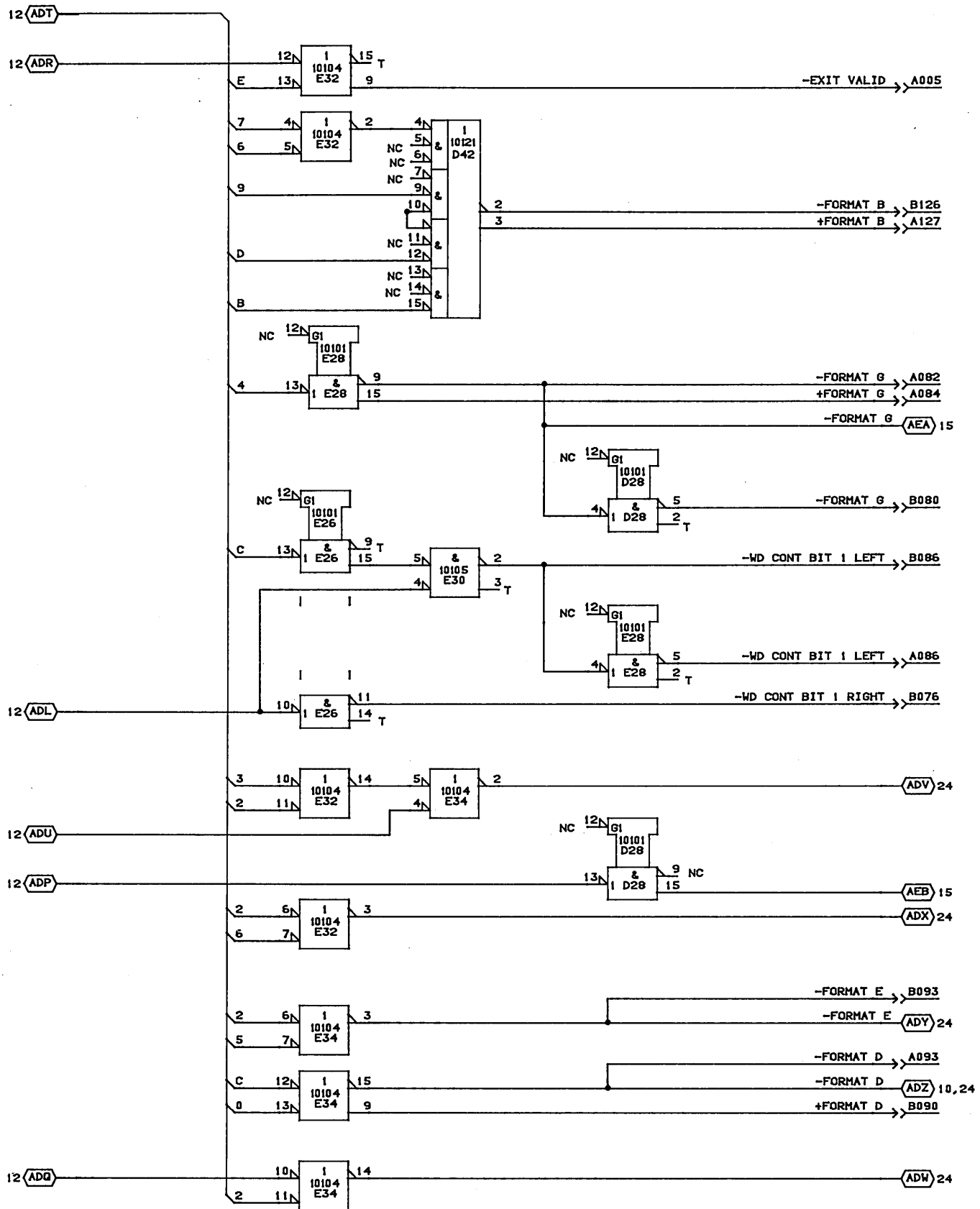
ARVI 1 MUX BITS 57-63,P7  
210 PAK ASSY  
TYPE: 1GL0

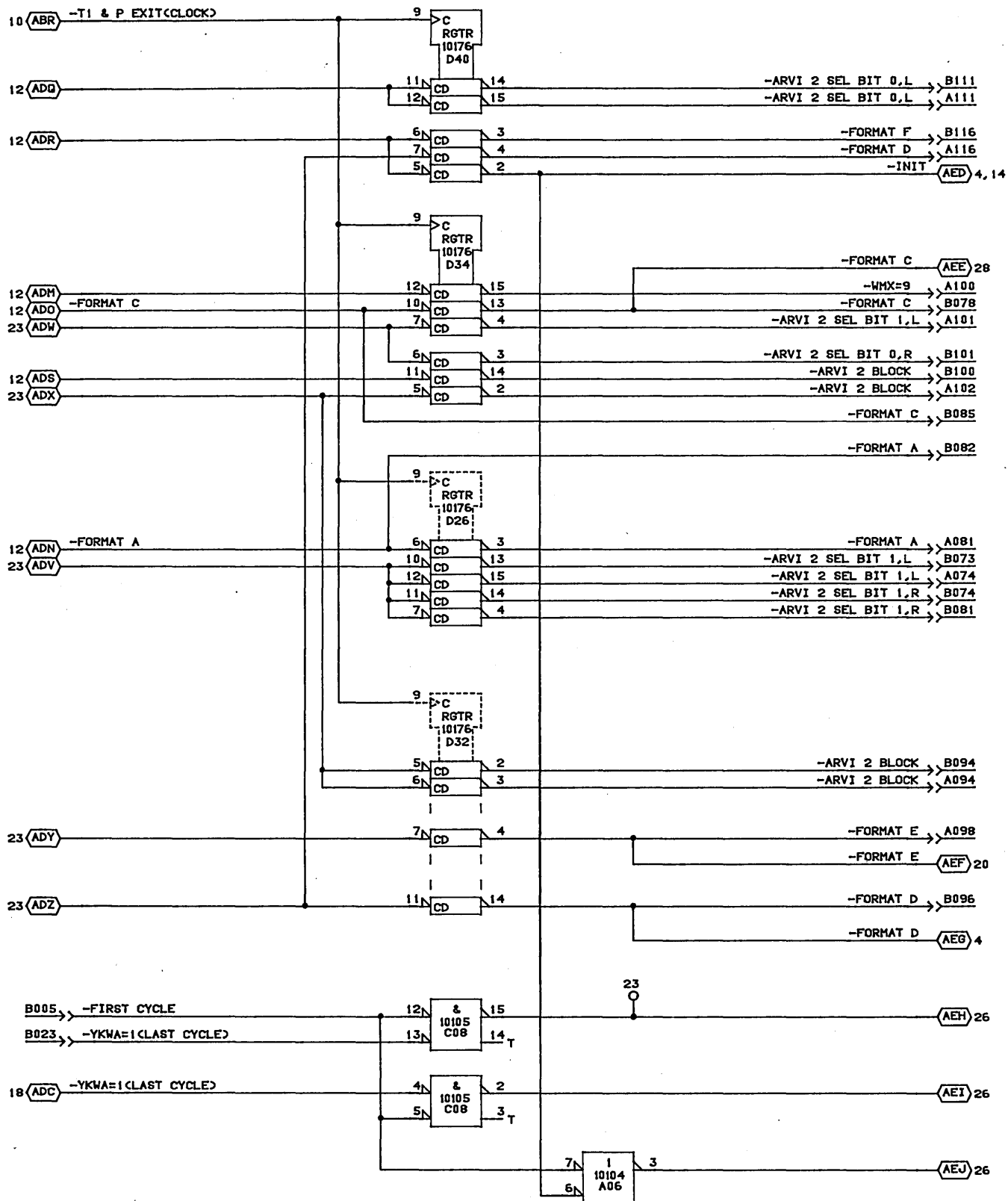
19-APR-85

SHEET 22

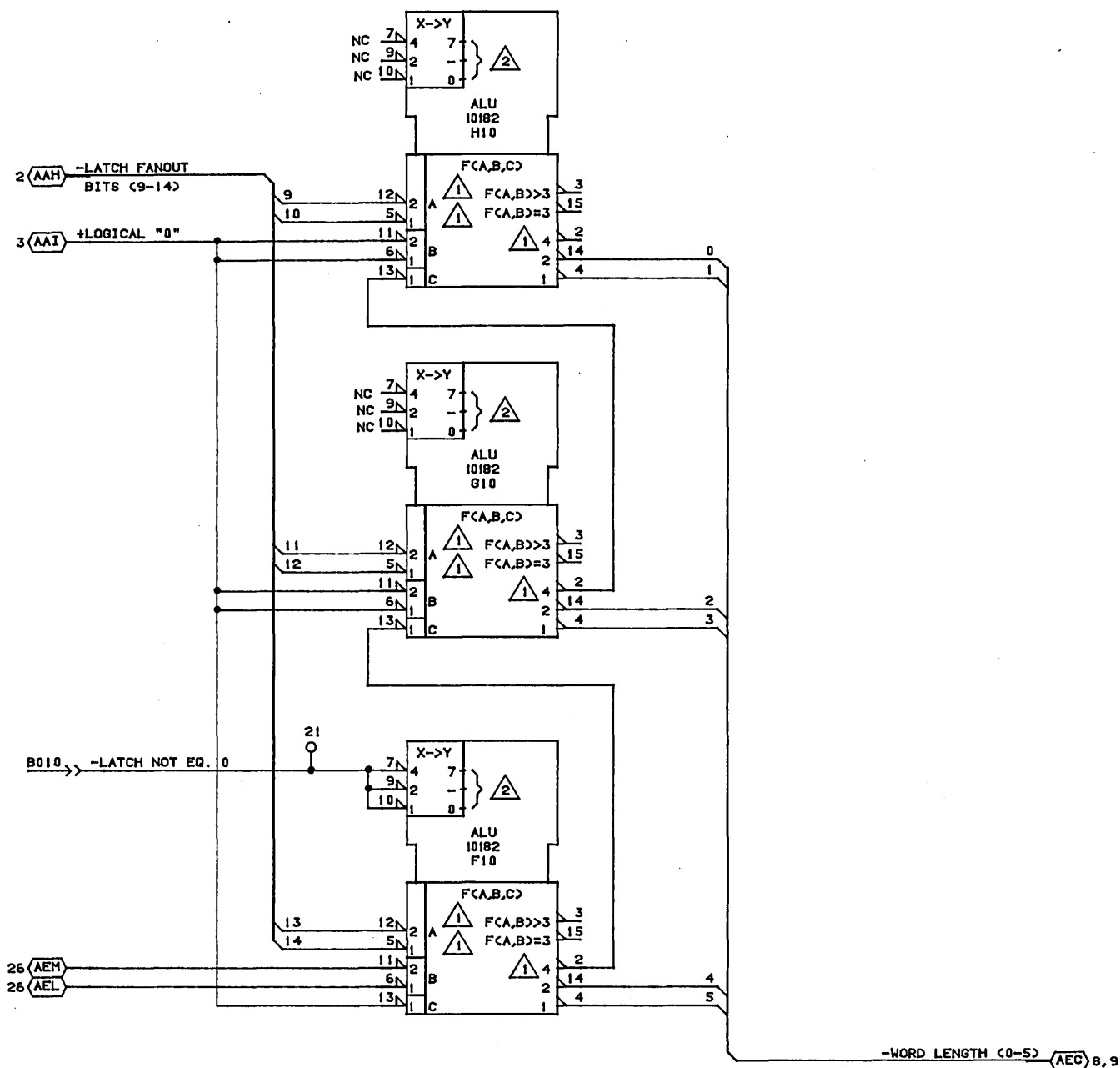
B







CONTROL DATA CANADA LTD	ARVI 2 SEL RGTR 210 PAK ASSY TYPE: 1GL0		C		B
		19-APR-85		SHEET 24	



⚠ OUTPUT MODIFIER VALID ONLY FOR ARITHMETIC SUMMING FUNCTION

⚠ FUNCTION TABLE

X→Y OUTPUT	FUNCTION
7	$F = \Sigma A, B, C$
6	$F = \Sigma A, B, C$
5	$F = \Sigma A, B, C$
4	$F = 2A$
3	$F = A \oplus B$
2	$F = A = B$
1	$F = A + B$
0	$F = A \ominus B$

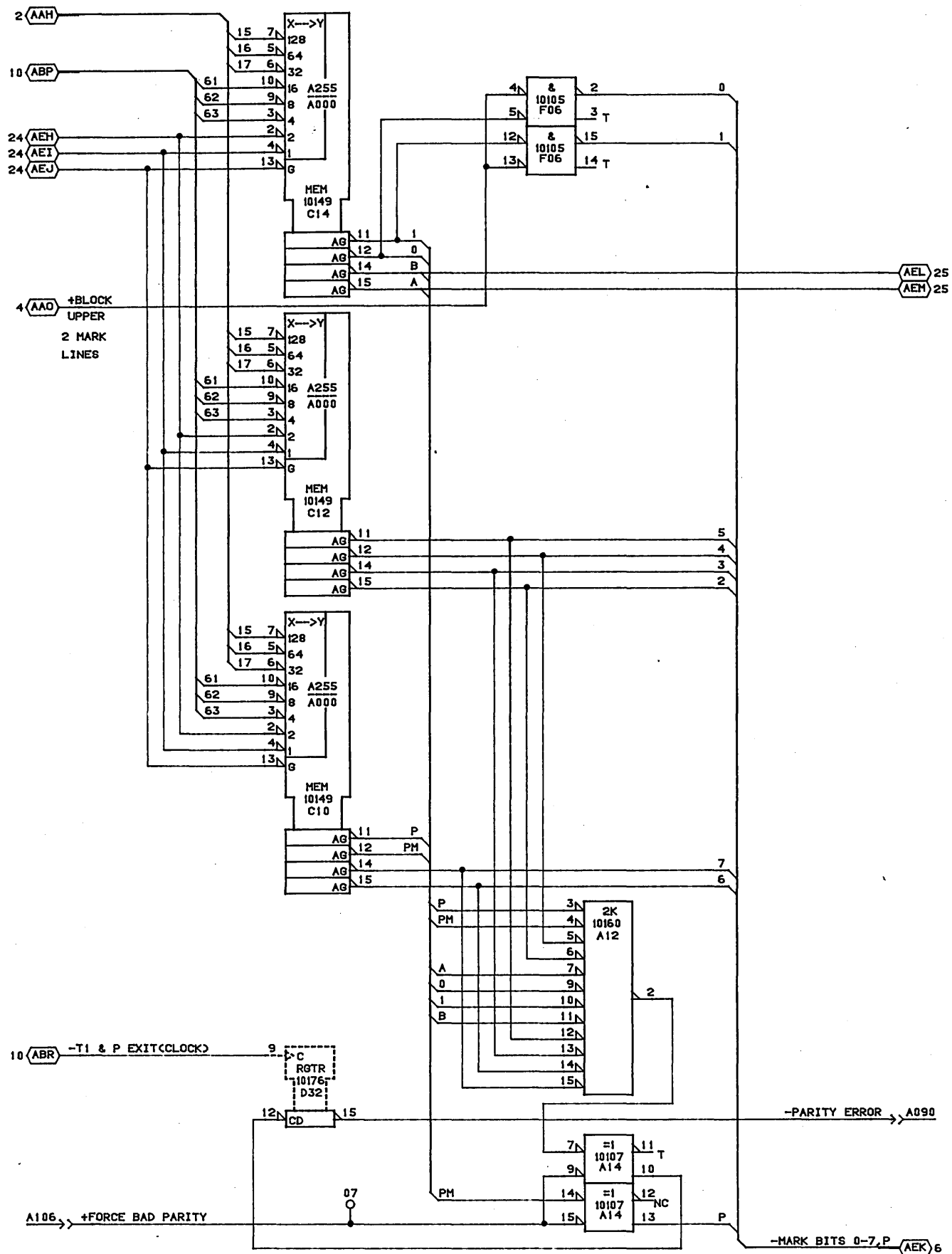
CONTROL  
DATA  
CANADA  
LTD

WORD LENGTH ADDER  
210 PAK ASSY  
TYPE: 1GL0

19-APR-85

SHEET 25

C B



CONTROL  
DATA  
CANADA  
LTD

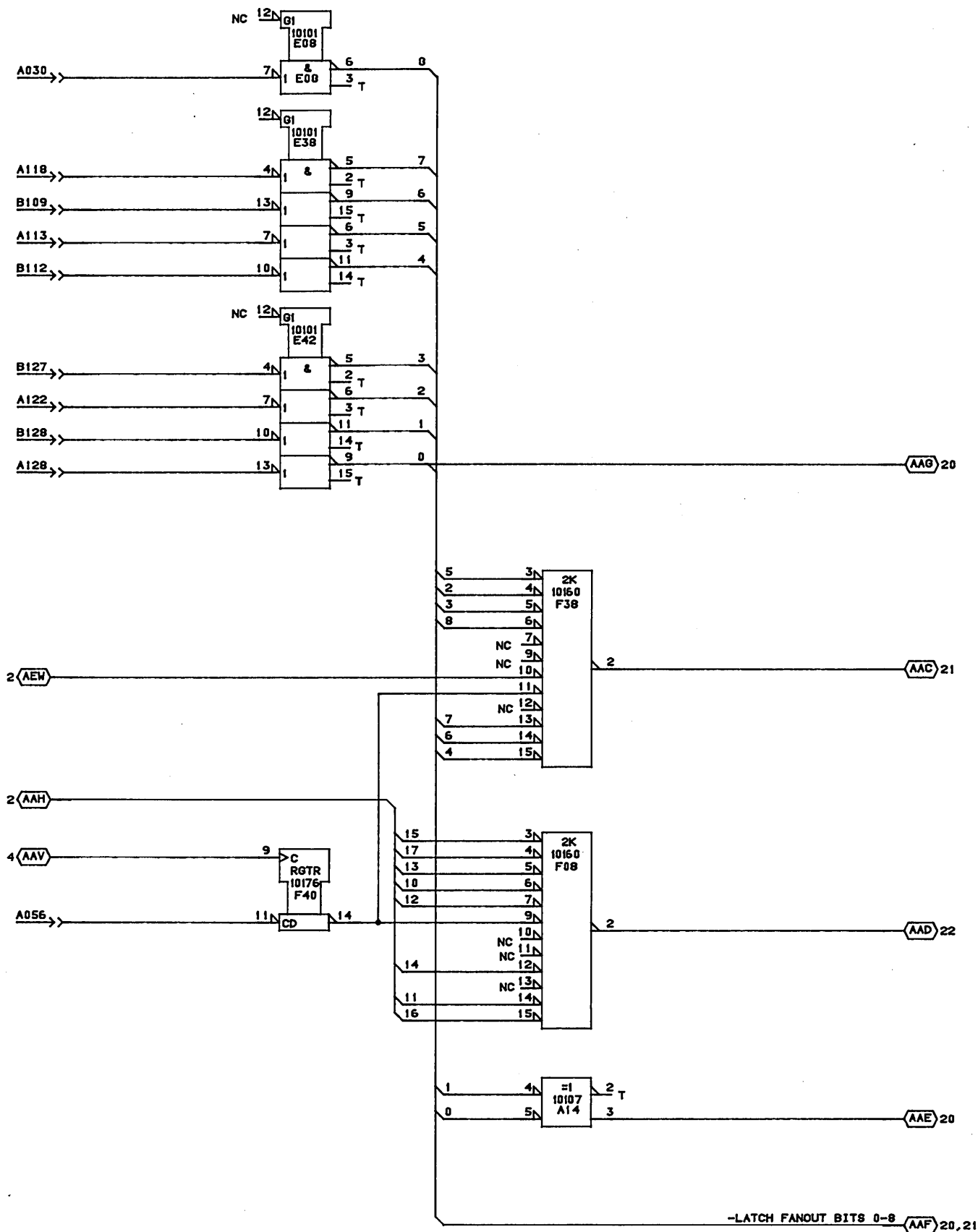
MARK BITS 0-7,P  
MODULE ASSY:210 PAK  
TYPE: 1GL0

19-APR-85

SHEET 26

C

B



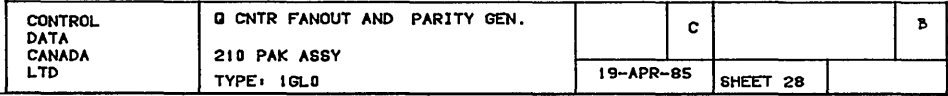
CONTROL  
DATA  
CANADA  
LTD

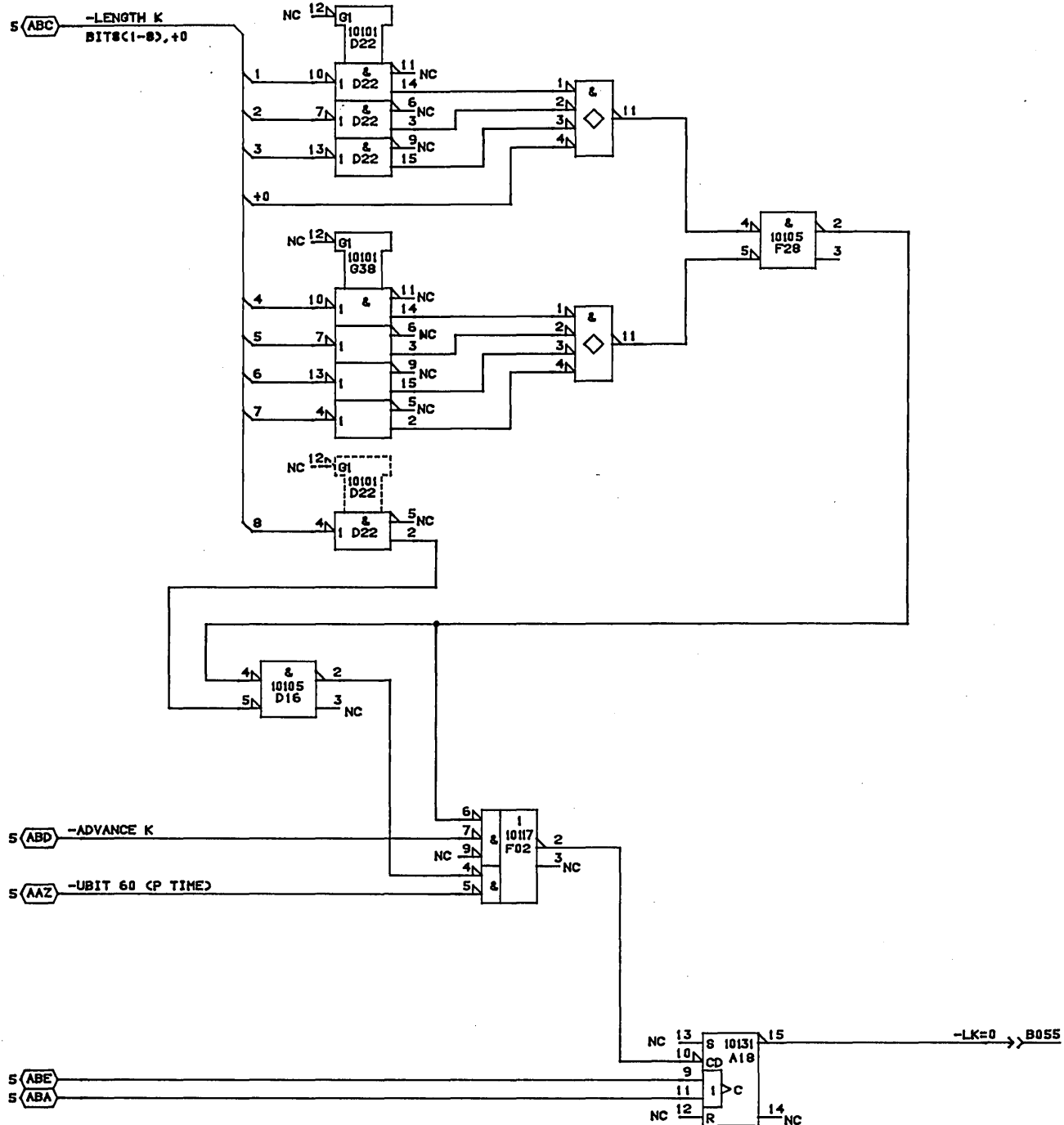
LATCH FANOUT BITS 0-8  
210 PAK ASSY  
TYPE: 1GL0

19-APR-85

SHEET 27

8





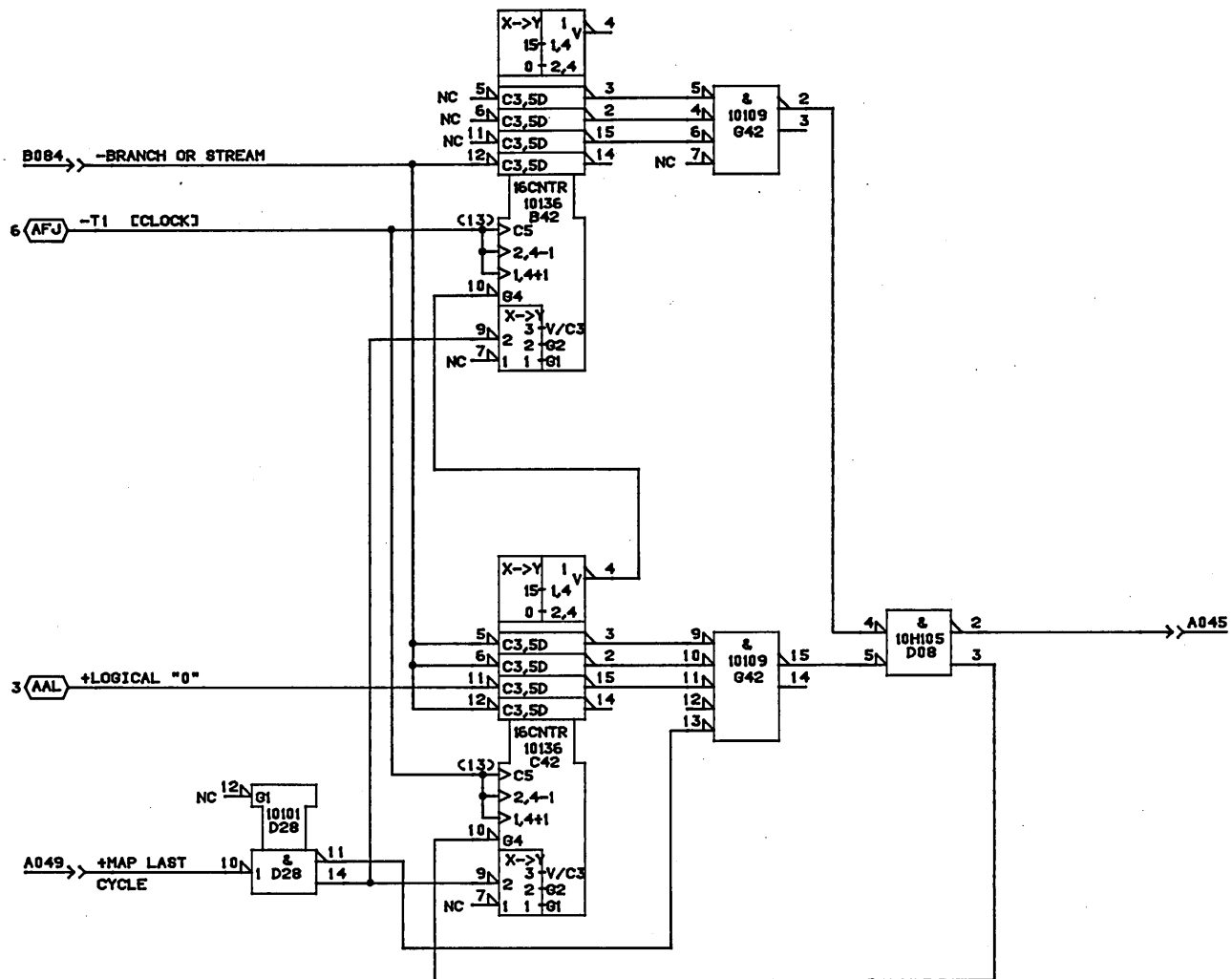
CONTROL  
DATA  
CANADA  
LTD

210 PAK ASSY  
TYPE: IGL0

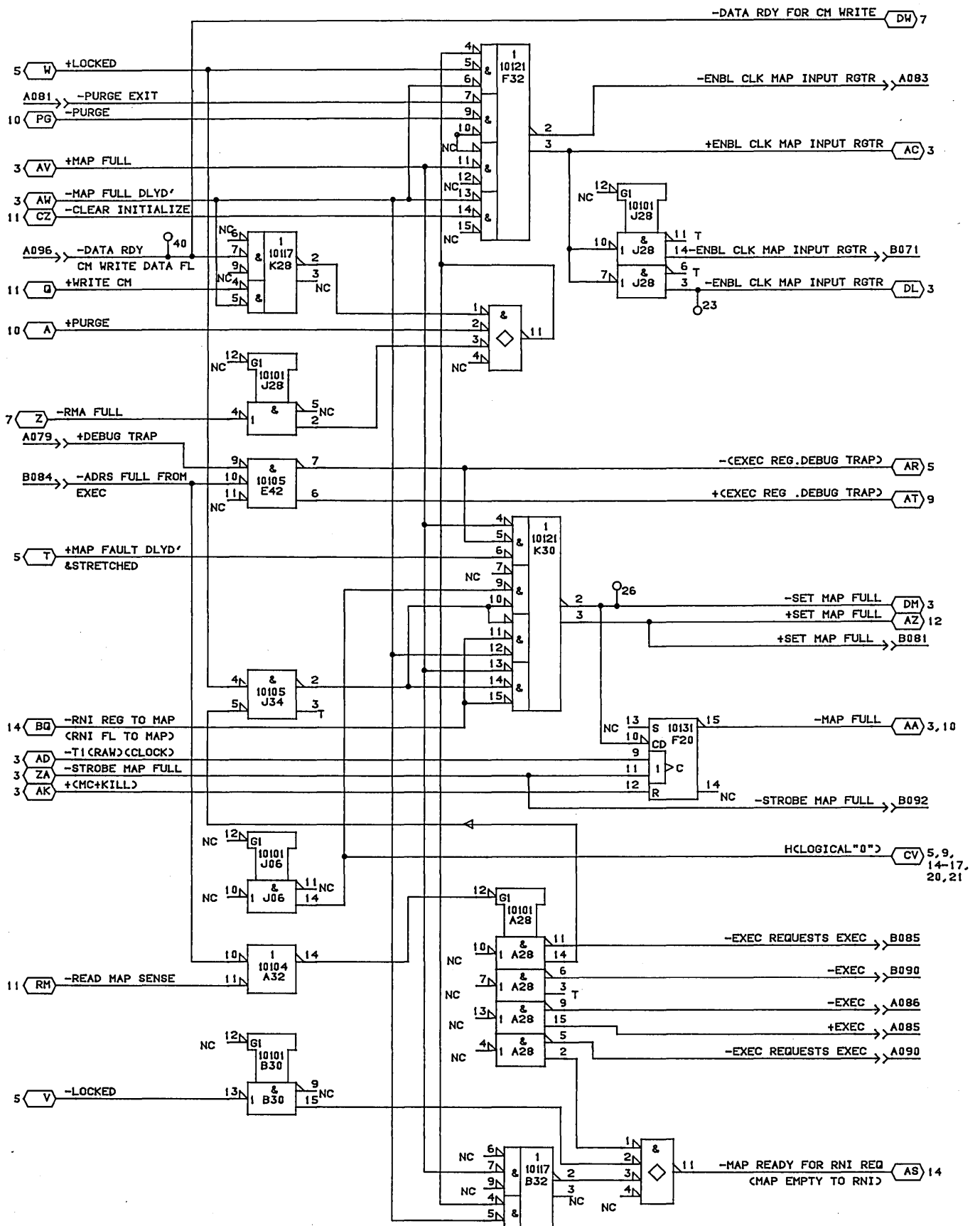
19-APR-85

SHEET 29

B



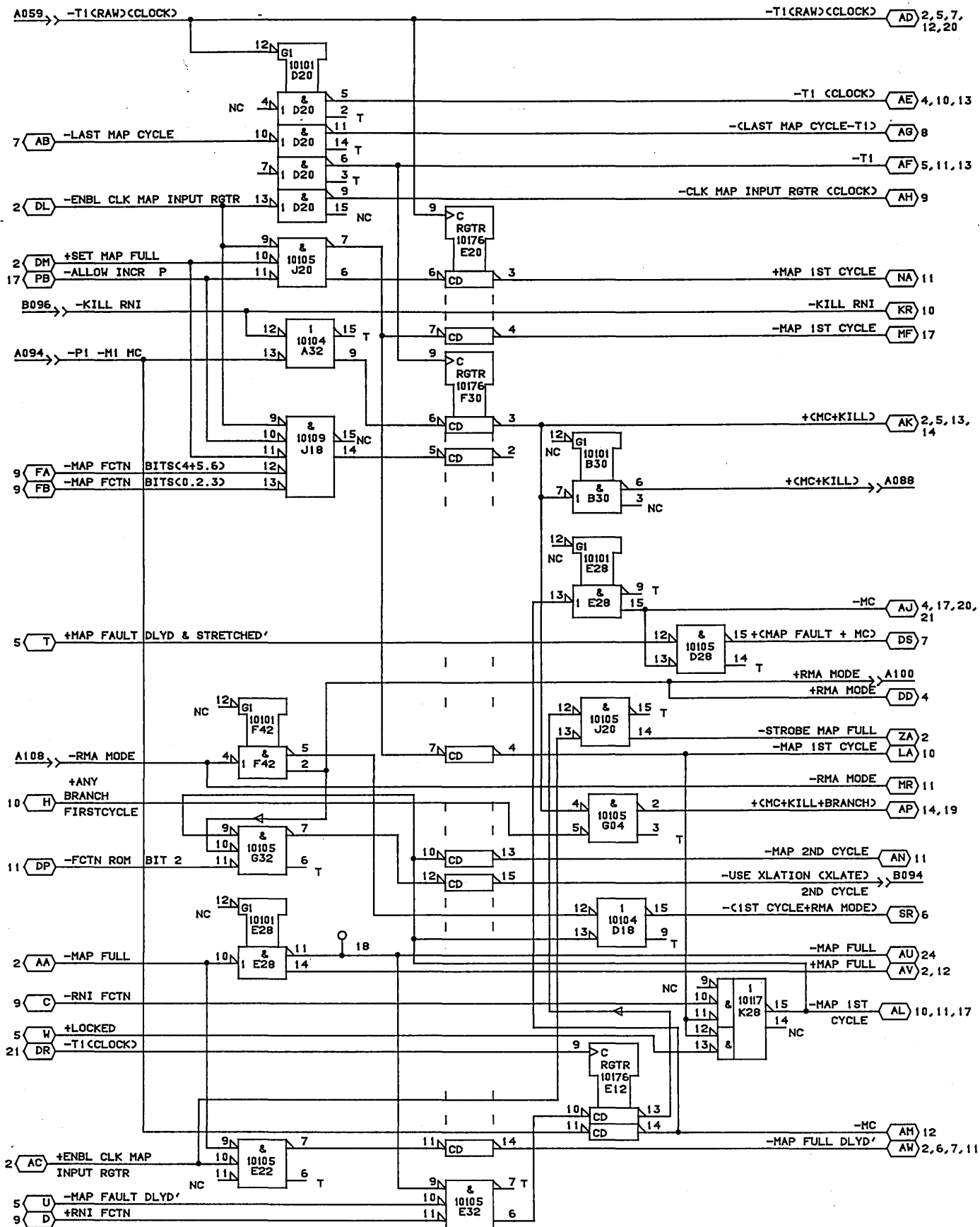




CONTROL  
DATA  
CANADA  
LTD

MAP & TIMING CONTROL A  
MODULE ASSY-210 PAK  
TYPE: 20A0

	C		C
09-MAY-85	SHEET 02		

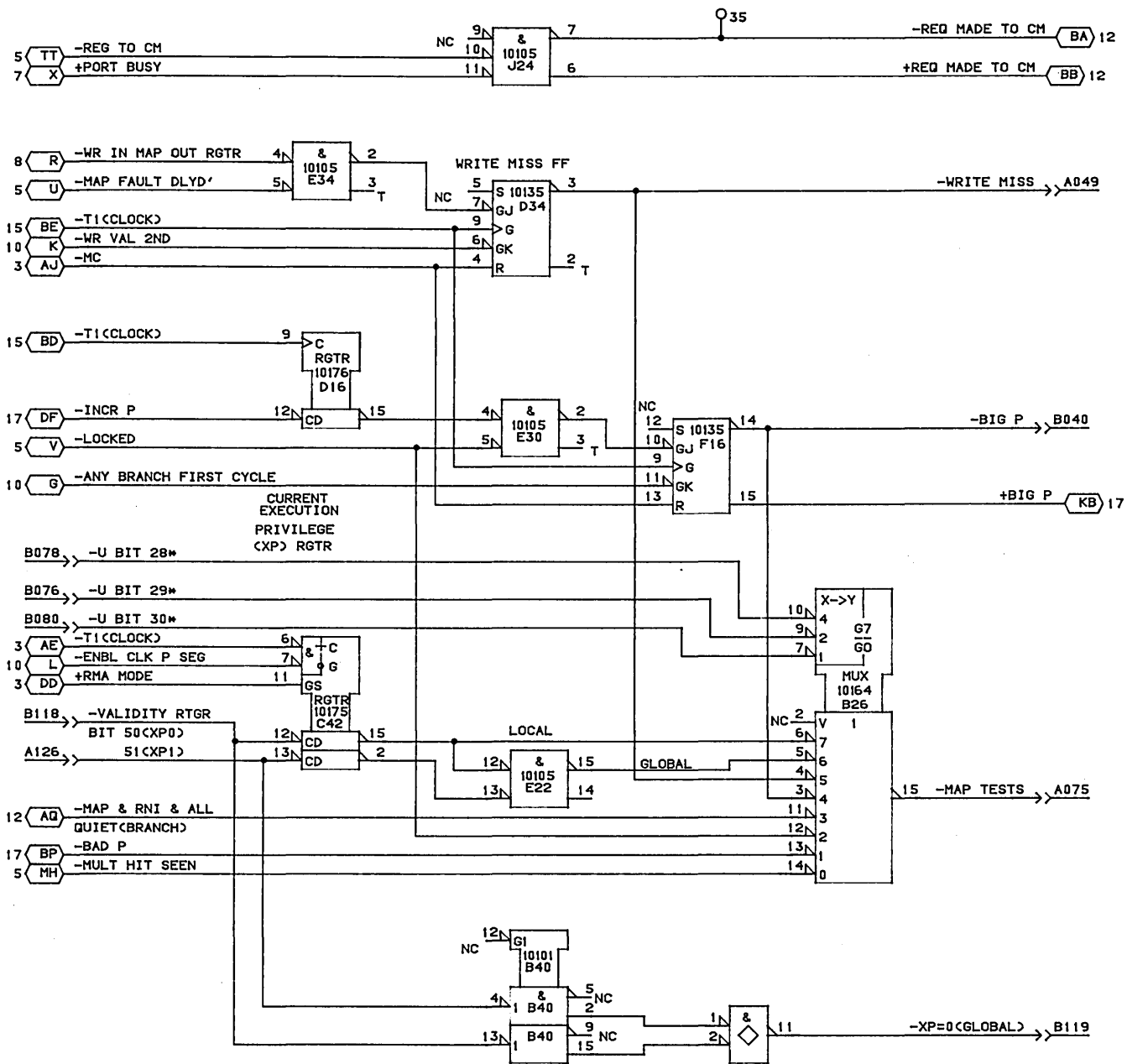


CONTROL  
DATA  
CANADA  
LTD

MAP TIMING CONTROL B  
MODULE ASSY- 210 PAK'  
TYPE: 2GA0

09-MAY-85

SHEET 03



NOTE: \*SHORT

CONTROL  
DATA  
CANADA  
LTD

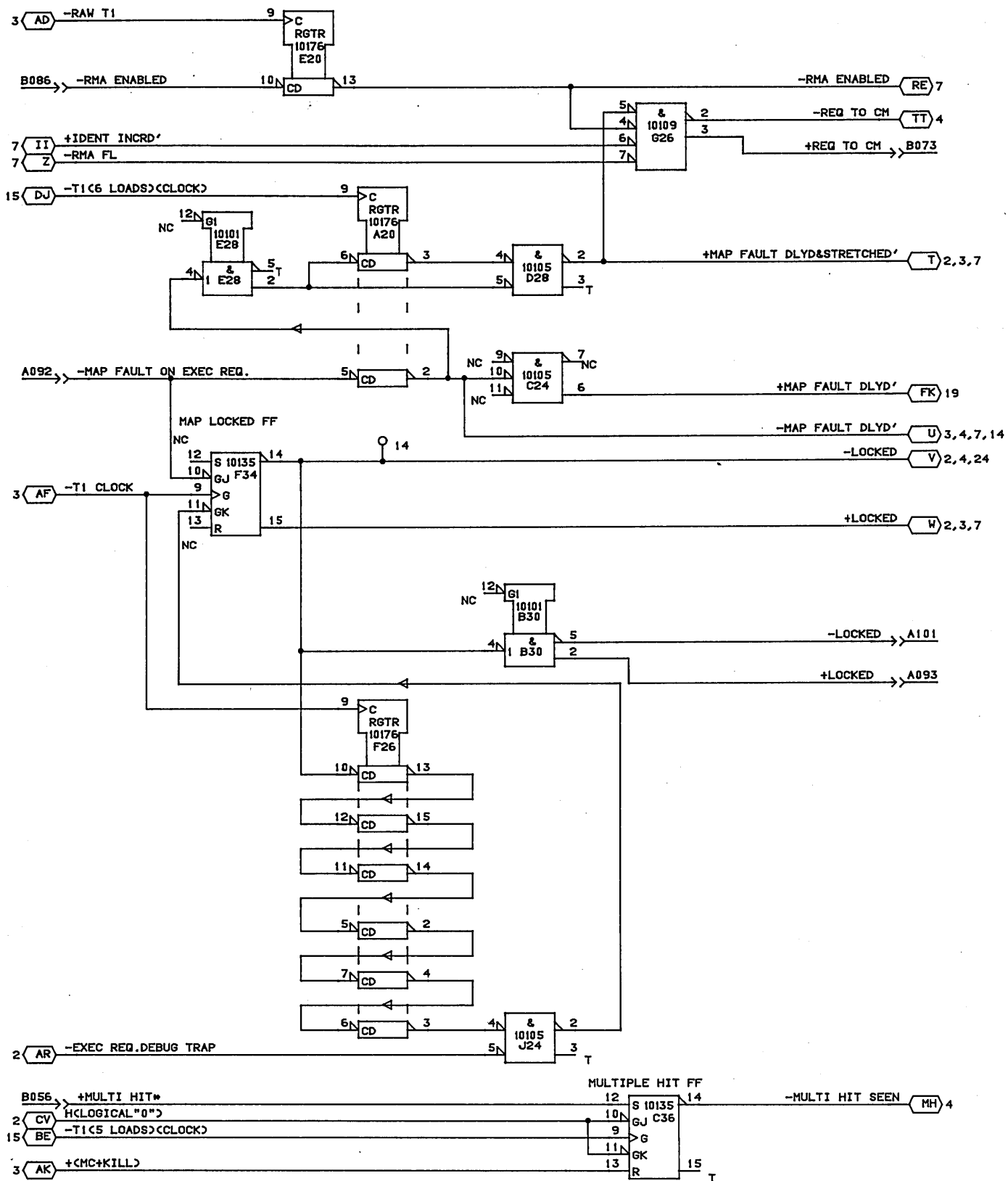
MAP TEST, MUX BIG P  
WRITE MISS FF  
MODULE ASSY: 210 PAK'  
TYPE: 2GA0

C

C

18-FEB-85

SHEET 04



\*NO TERMINATOR

CONTROL  
DATA  
CANADA  
LTD

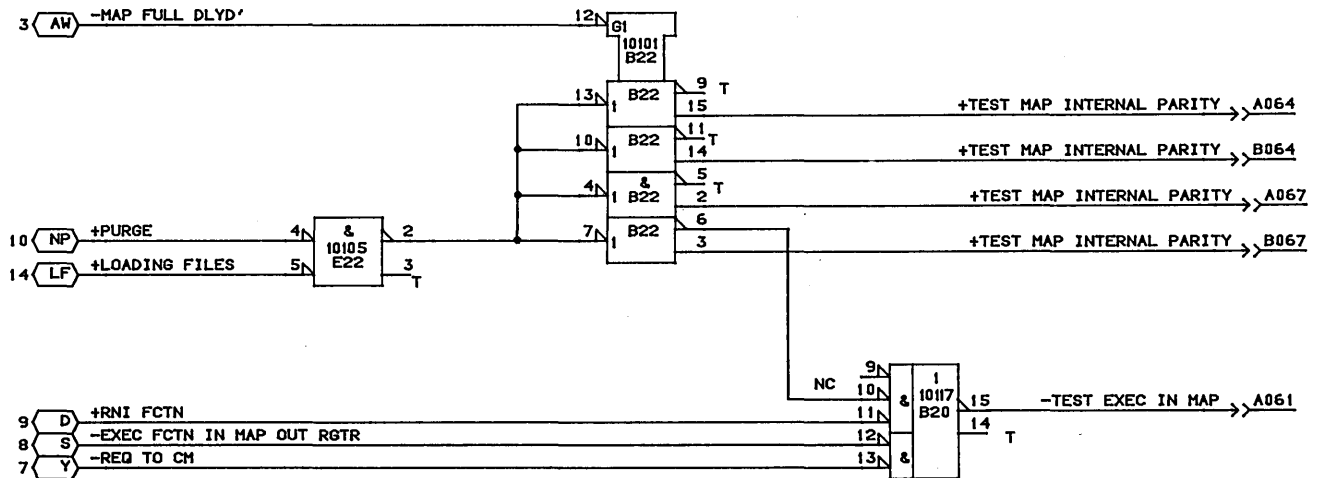
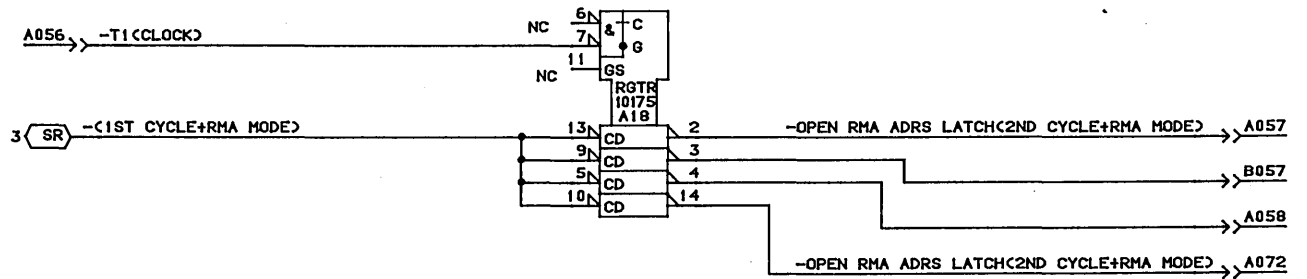
MAP LOCK CKT  
MODULE ASSY- 210 PAK'  
TYPE: 2GA0

09-MAY-85

SHEET 05

C

C



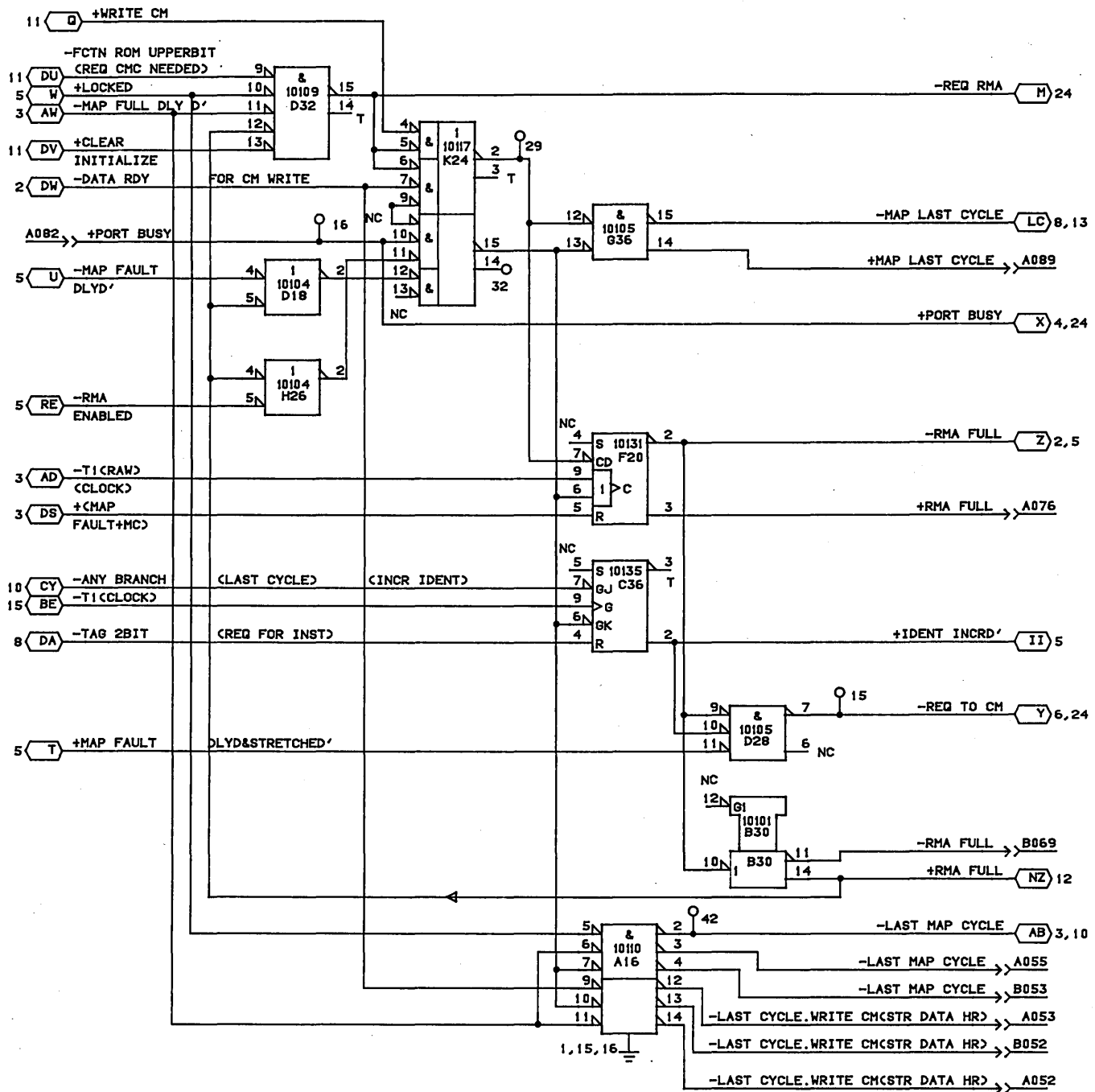
CONTROL  
DATA  
CANADA  
LTD

MISC OFF PAK CONTROLS OUT  
MODULE ASSY- 210 PAK'  
TYPE: 2GA0

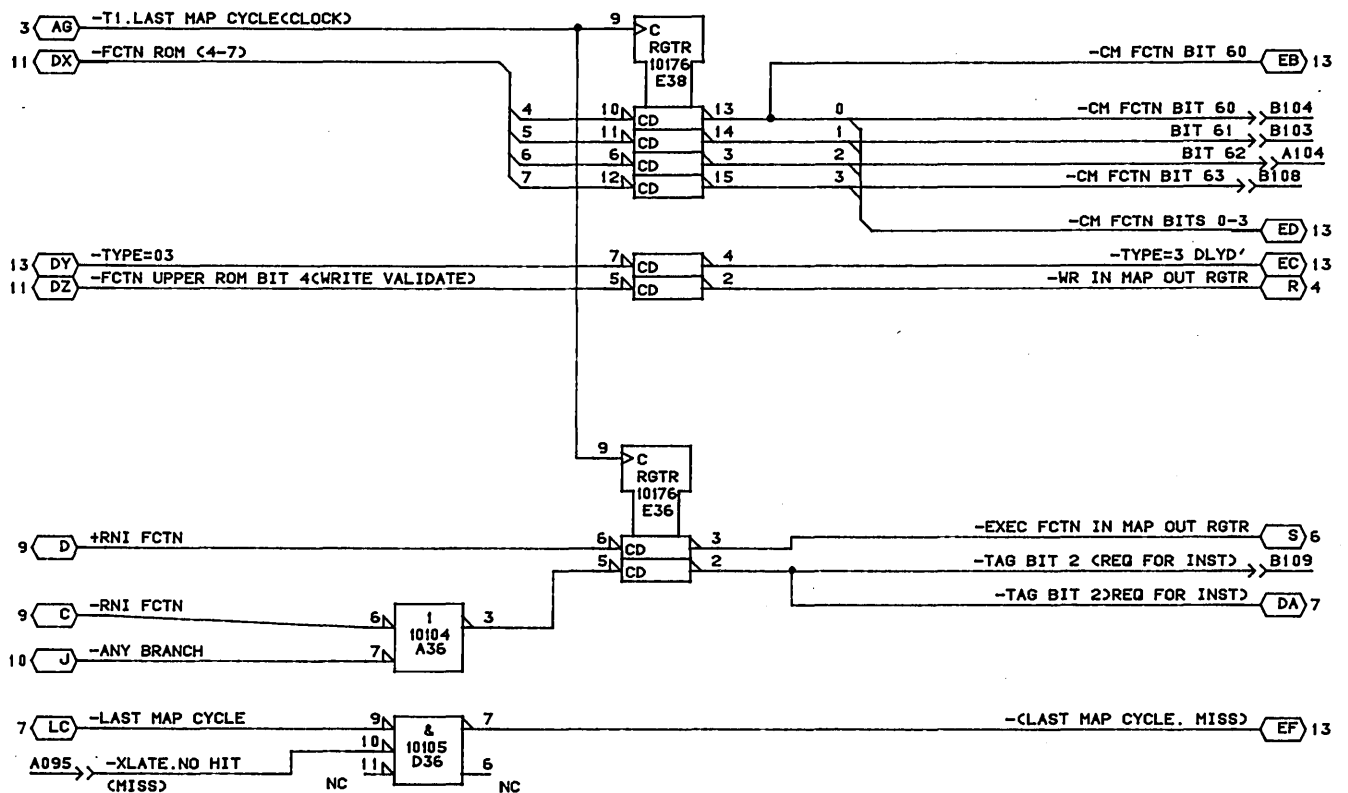
14-FEB-85

SHEET 06

C



MAP OUT RGTR:  
FROM FCTN  
LOWER RGTR

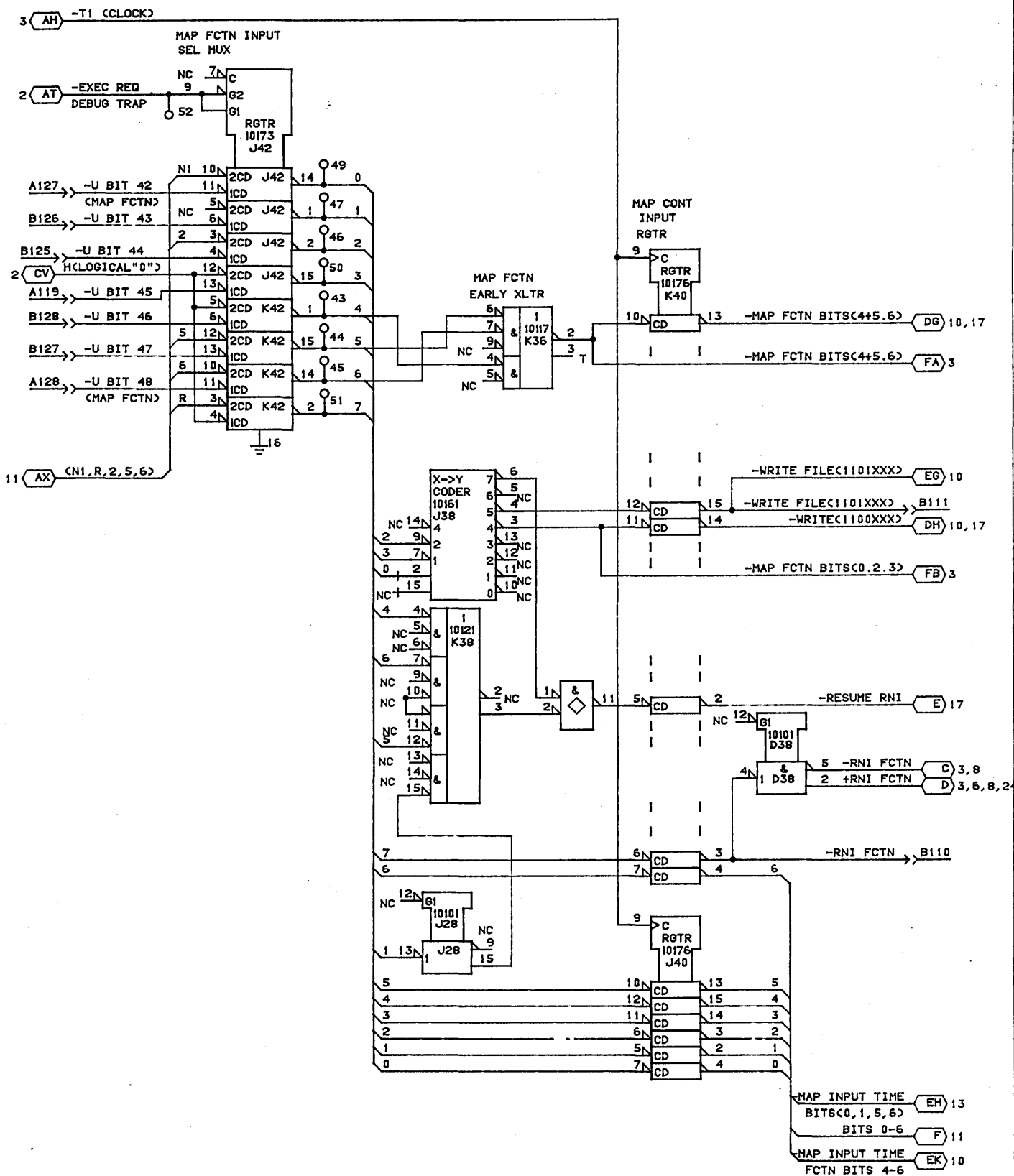


CONTROL  
DATA  
CANADA  
LTD

MAP OUT RGTR FOR CM FCTN,  
EXEC RNI FCNTS, MAP MISC.  
MODULE ASSY 210 PAK'  
TYPE: 26A0

19-FEB-85

SHEET 08



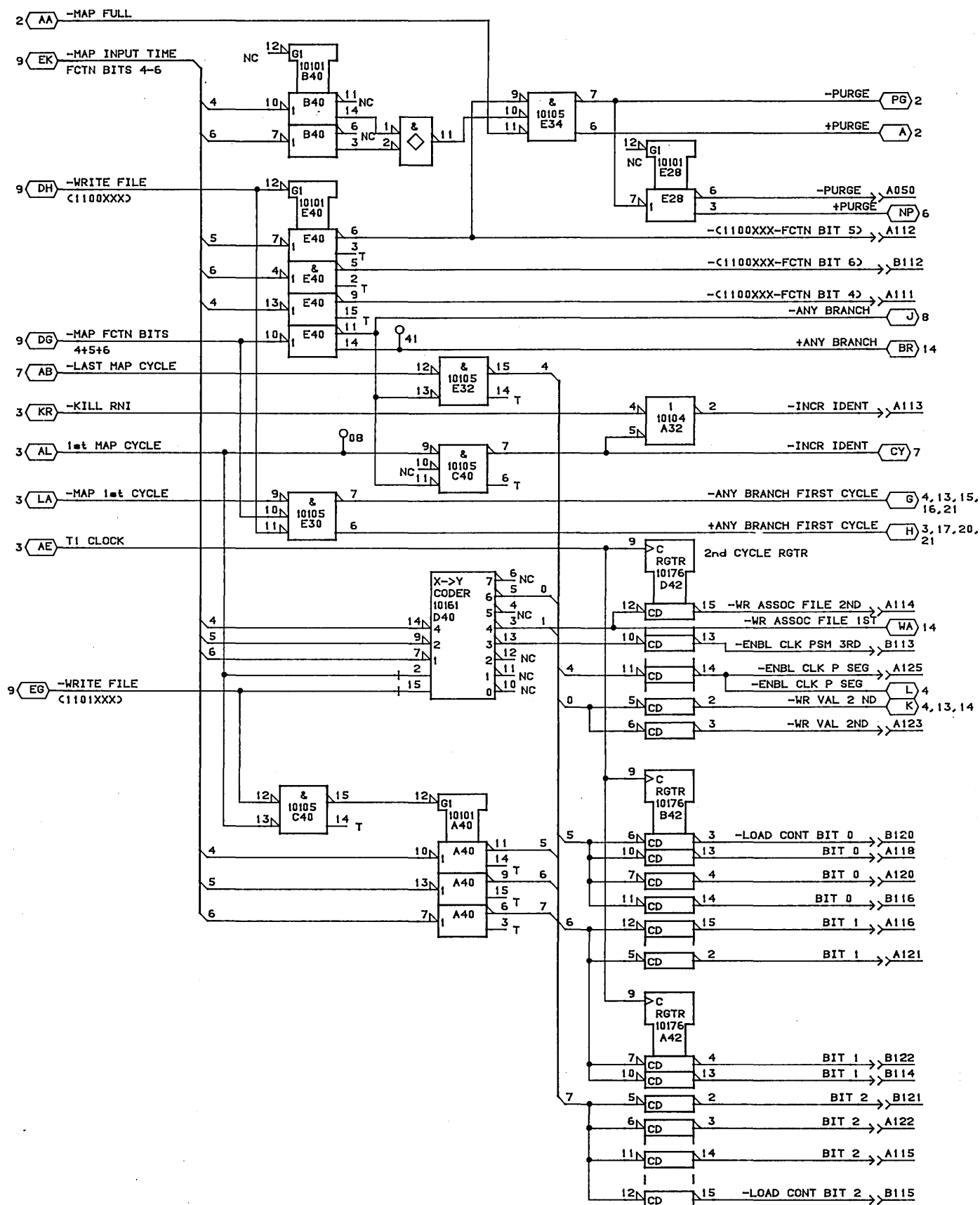
CONTROL  
DATA  
CANADA  
LTD

MAP FCTN INPUT & EARLY  
TRANSLATIONS  
MODULE ASSY- 210 PAK'  
TYPE 26A0

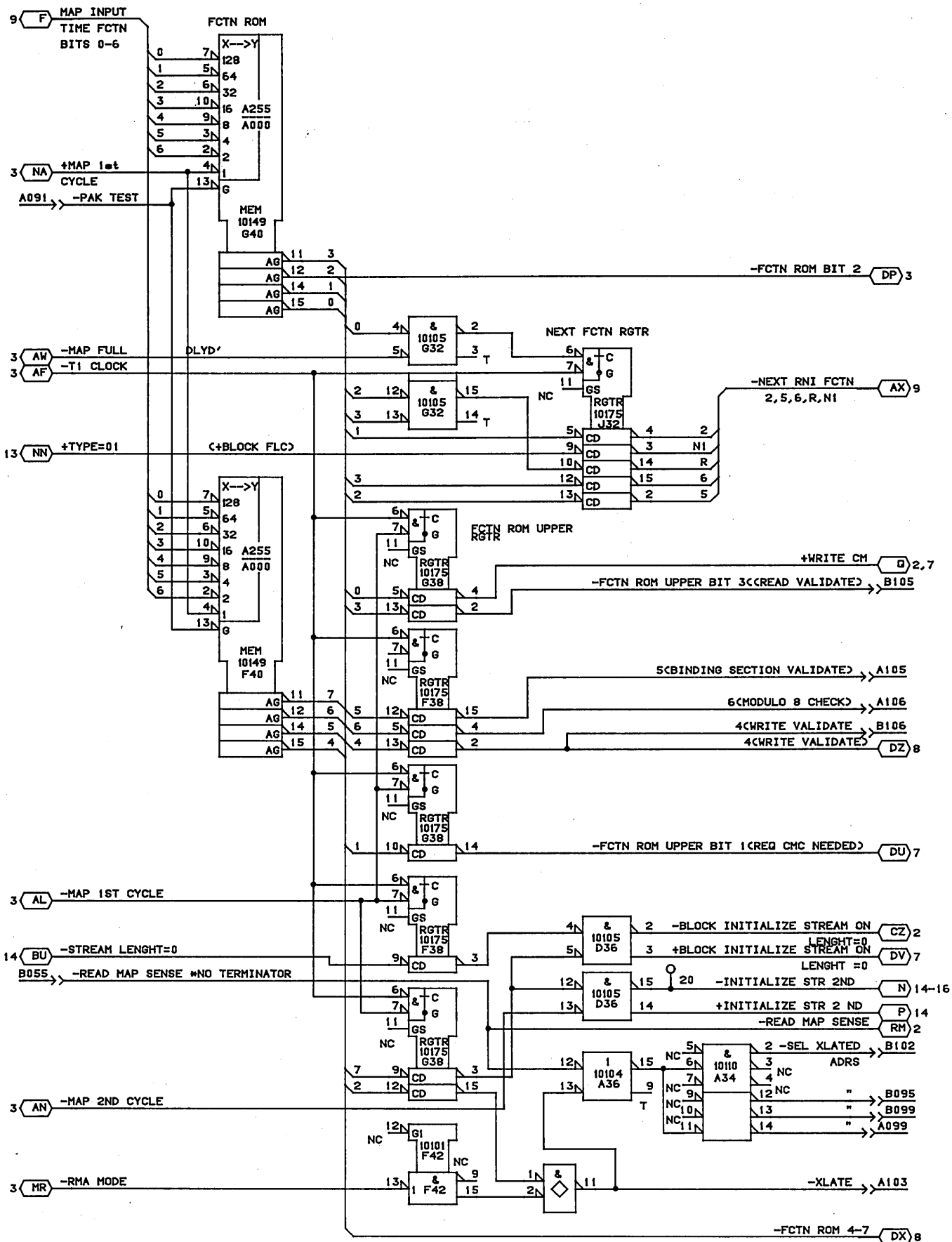
20-FEB-85

SHEET 09





CONTROL DATA CANADA LTD	MAP FCTN XLTR (1st CYCLE) MODULE ASSY- 210 PAK' TYPE: 2GA0		C		C
		20-FEB-85		SHEET 10	

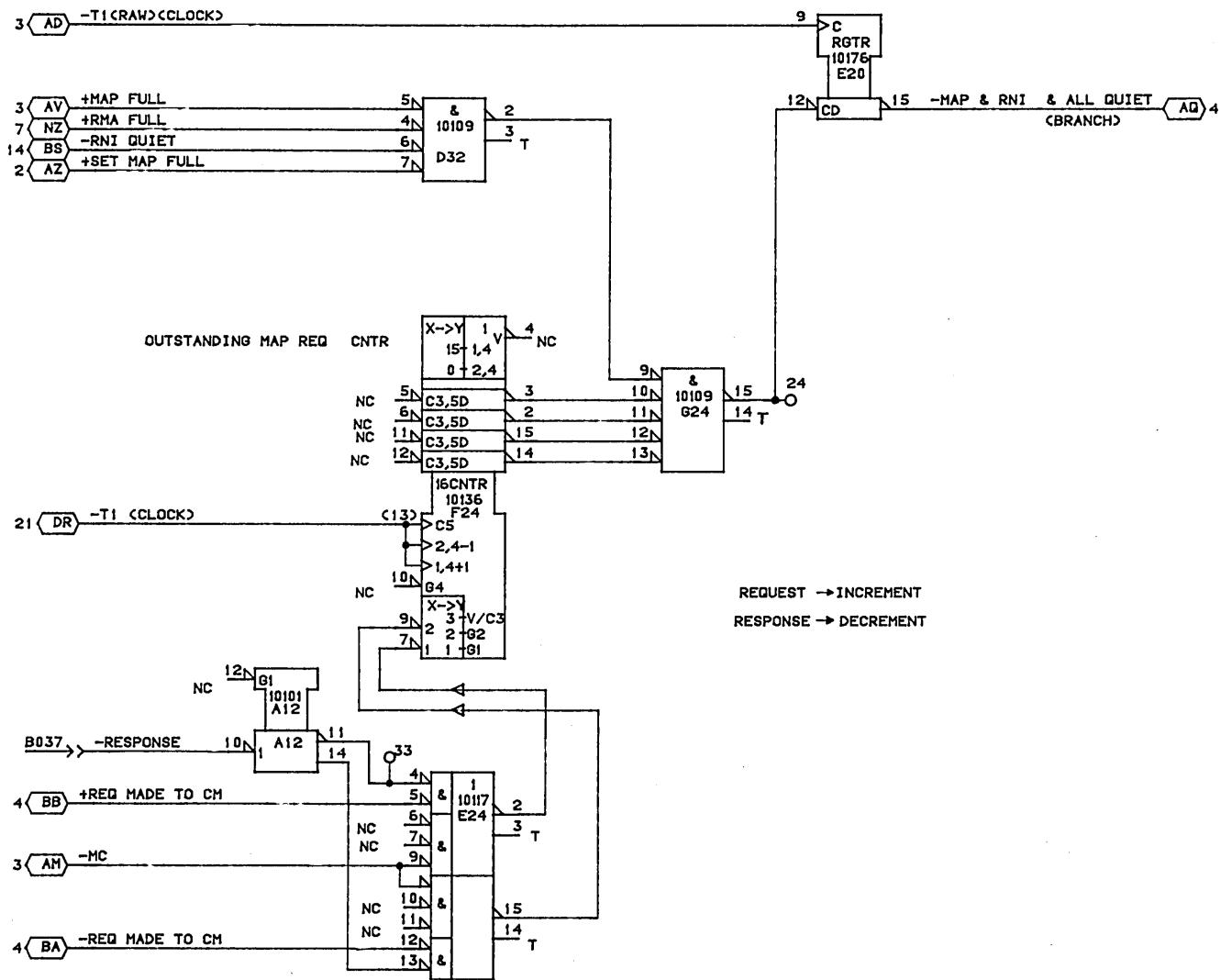


CONTROL  
DATA  
CANADA  
LTD

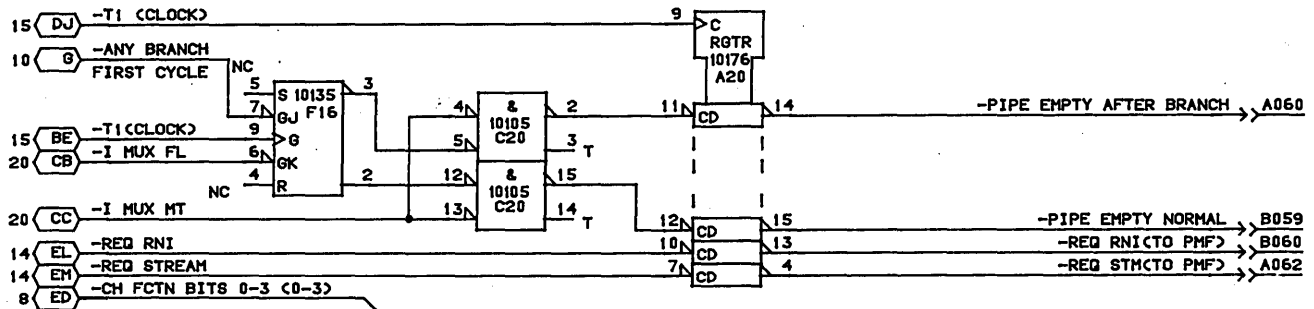
RNI NEXT FCTN RGTR  
FCTN ROM UPPER RGTR  
MODULE ASSY- 210 PAK'  
TYPE: 28A0

09-MAY-85

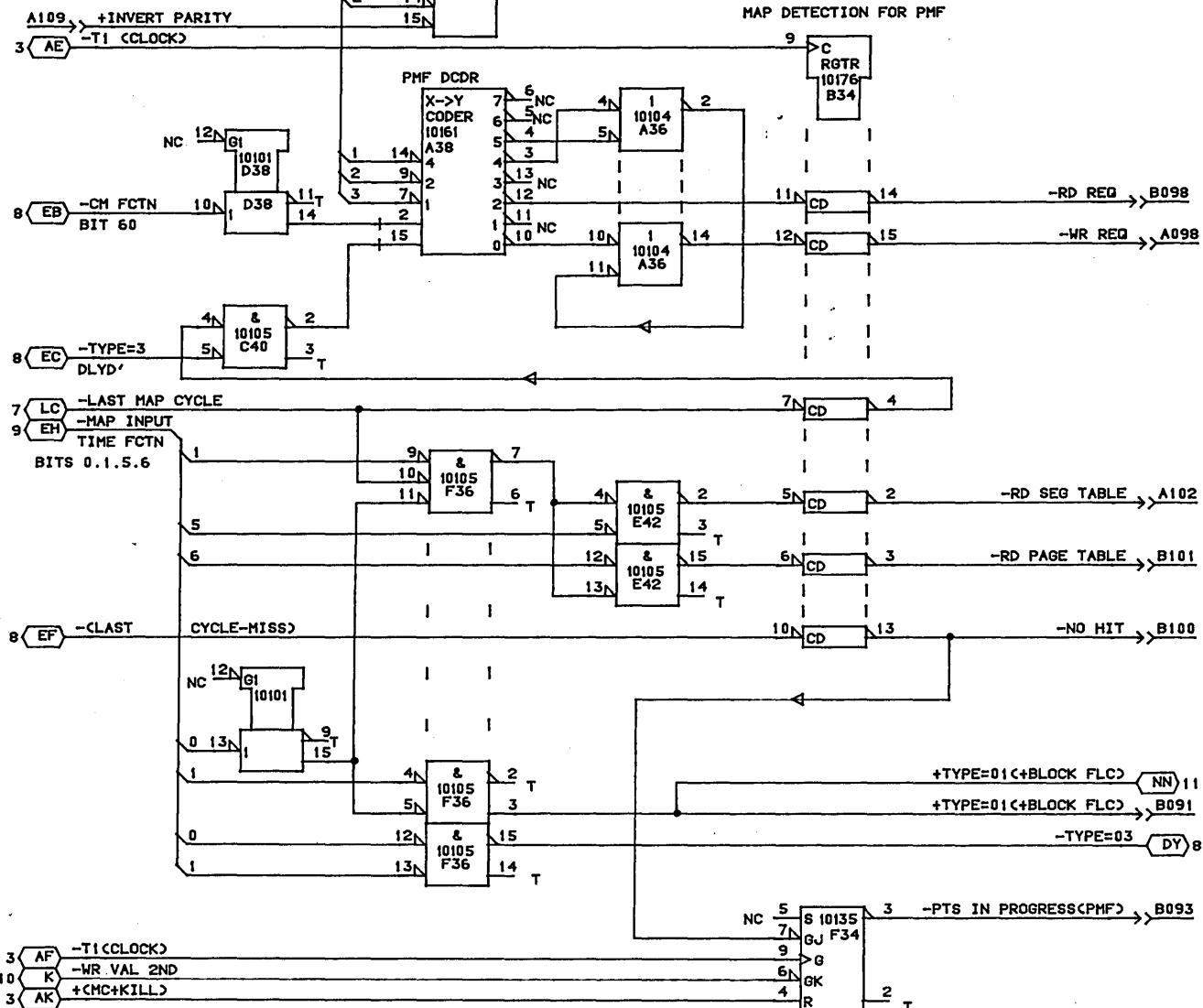
SHEET 11



# RNI DETECTION TO PMF



# MAP DETECTION FOR PMF

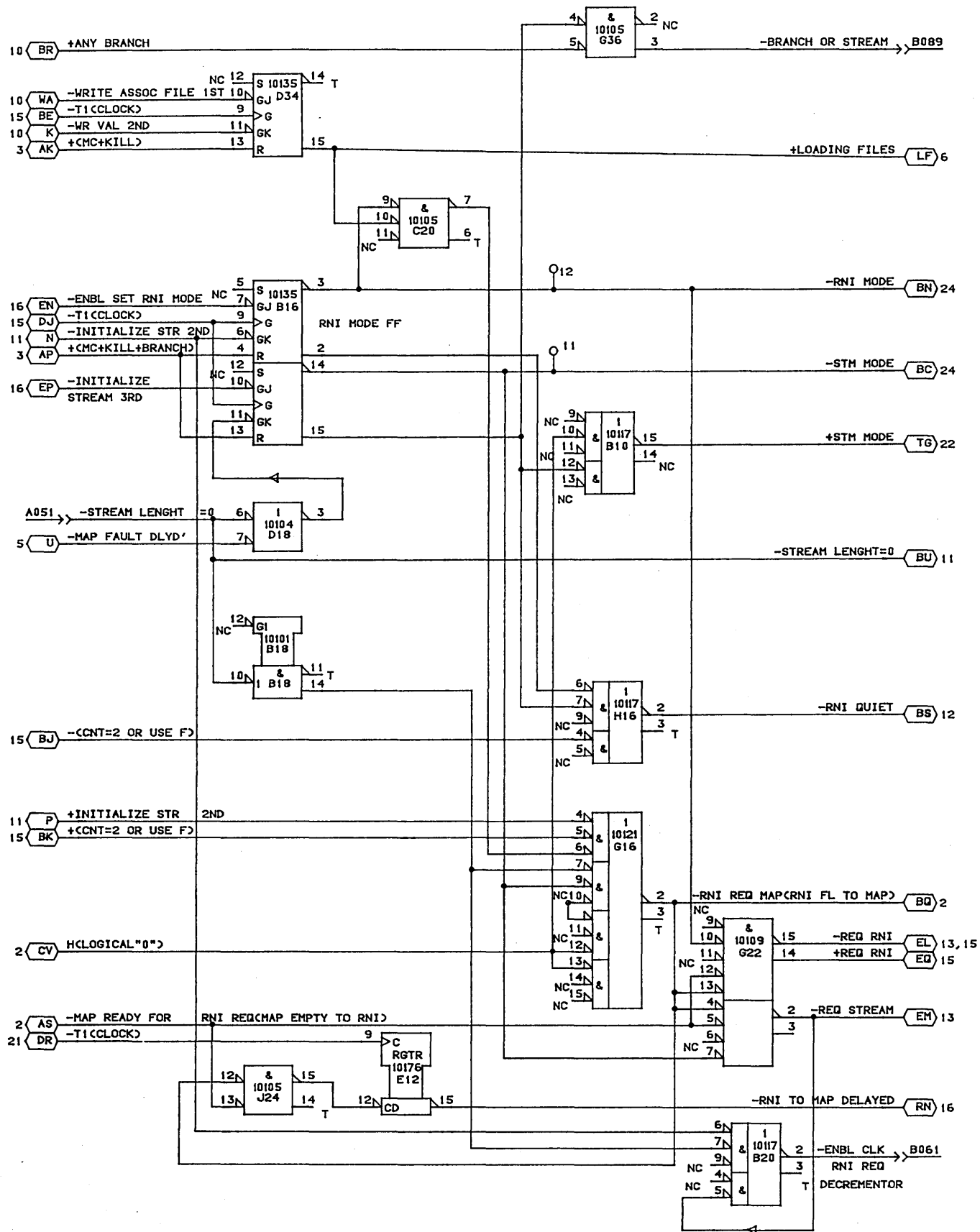


CONTROL  
DATA  
CANADA  
LTD

PMF CKTS  
MODULE ASSY-210 PAK'  
TYPE: 29A0

21-FEB-85

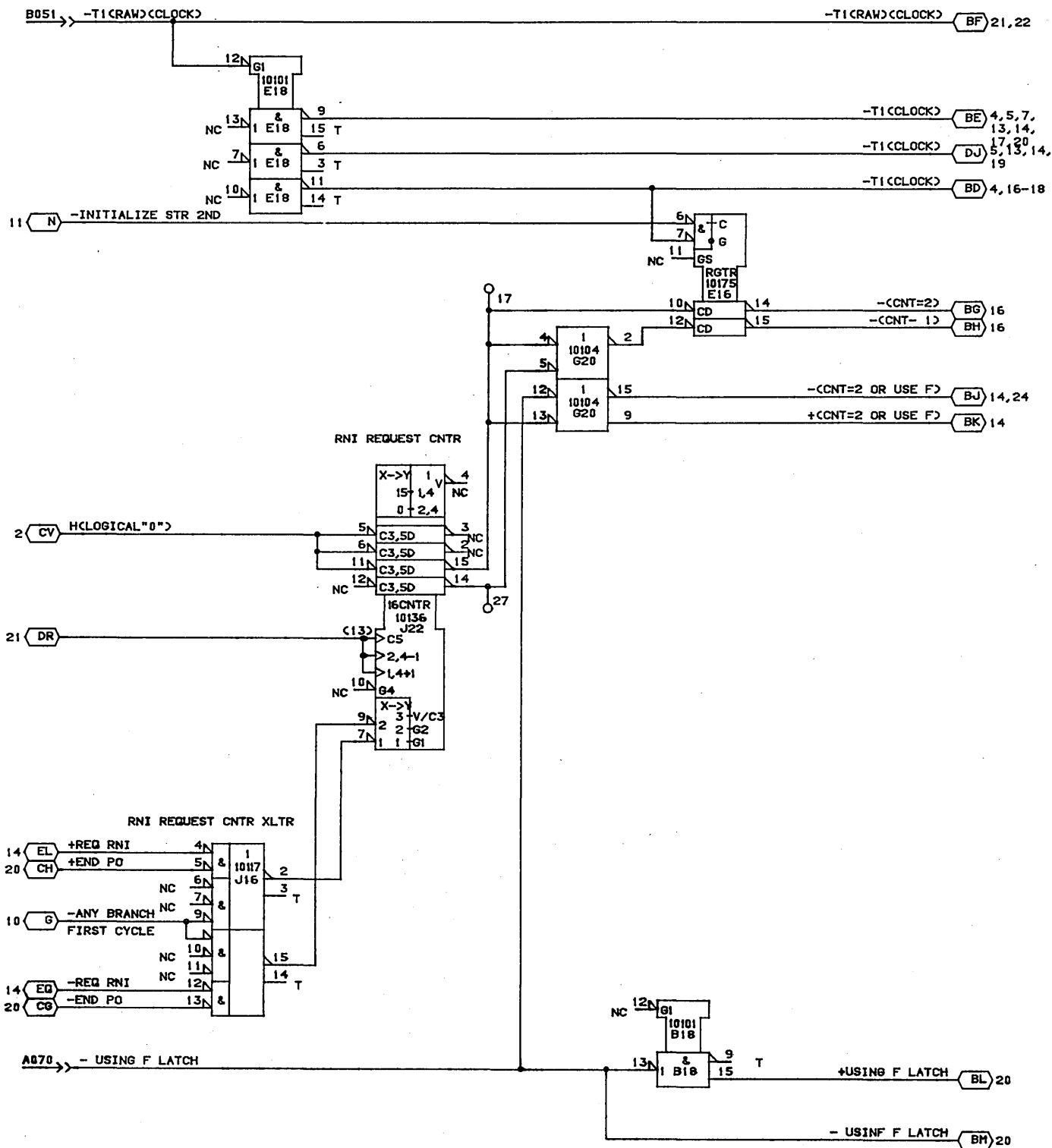
SHEET 13



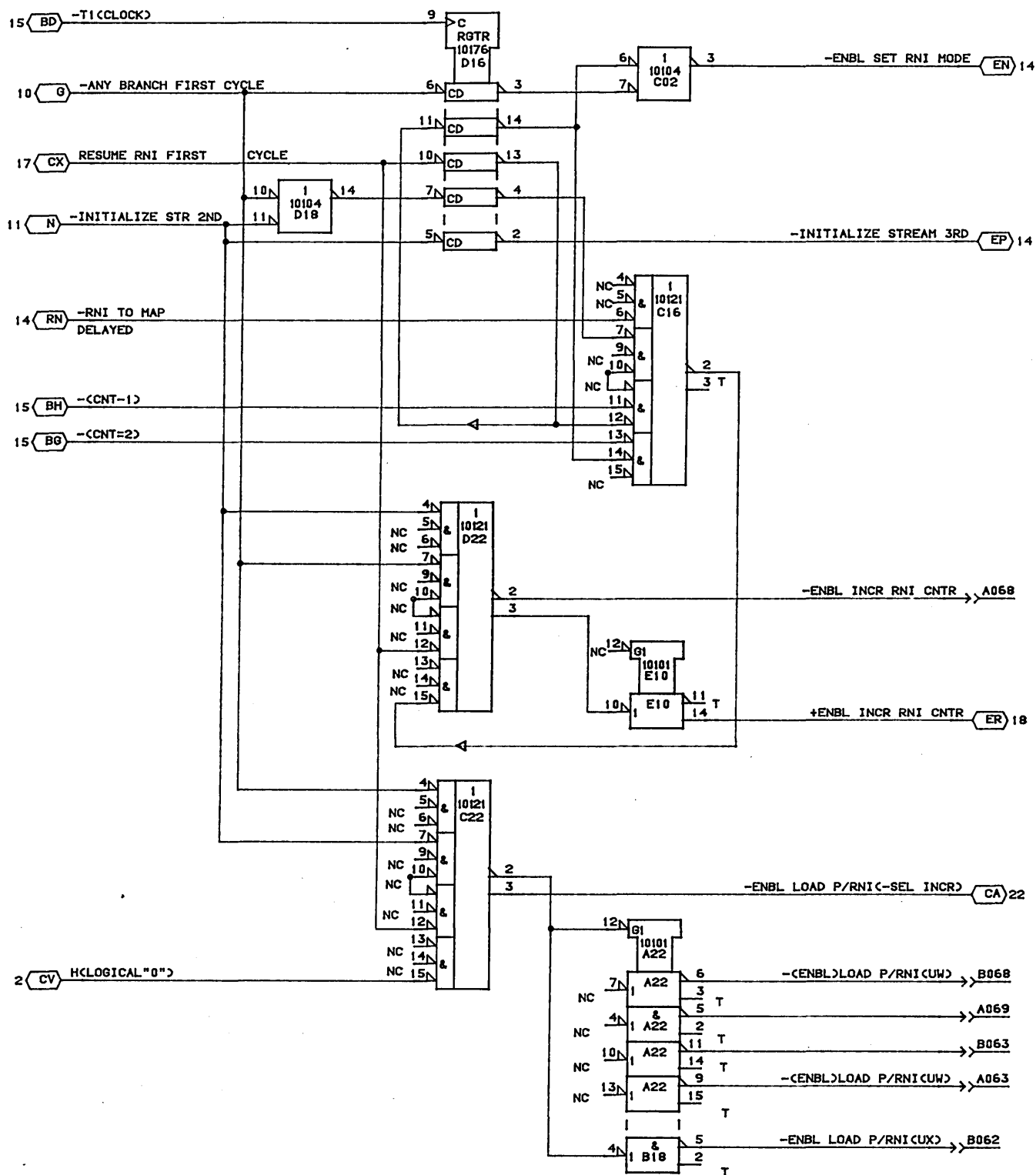
CONTROL  
DATA  
CANADA  
LTD

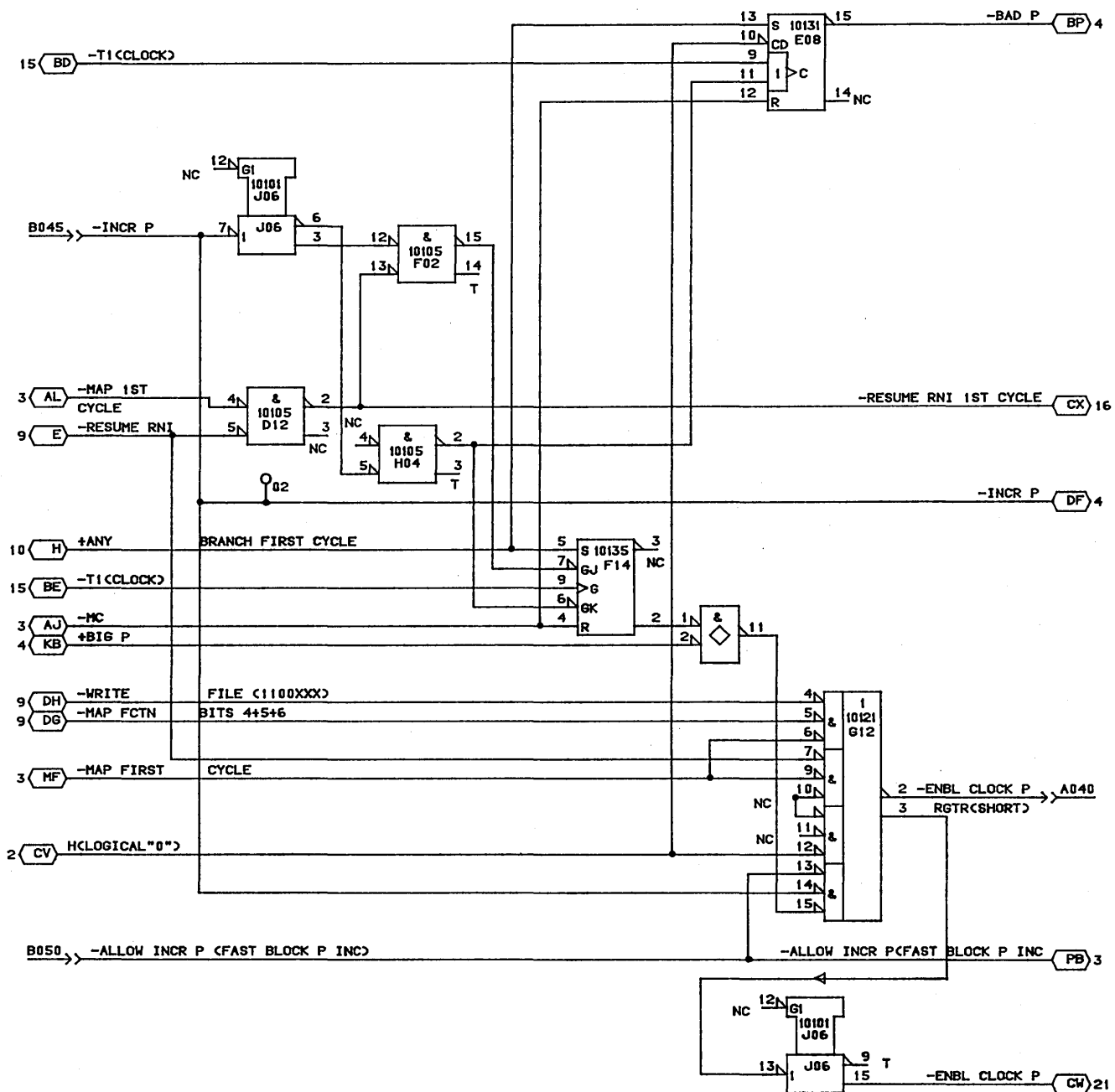
RNI CONTROLS  
MODULE ASSY-210 PAK'  
TYPE: 2GA0

	C		C
09-MAY-85	SHEET	14	



CONTROL DATA CANADA LTD	RNI REQUEST CNTR MODULE ASSY- 210 PAK' TYPE: 2GA0	C		C	
		09-MAY-85	SHEET	15	



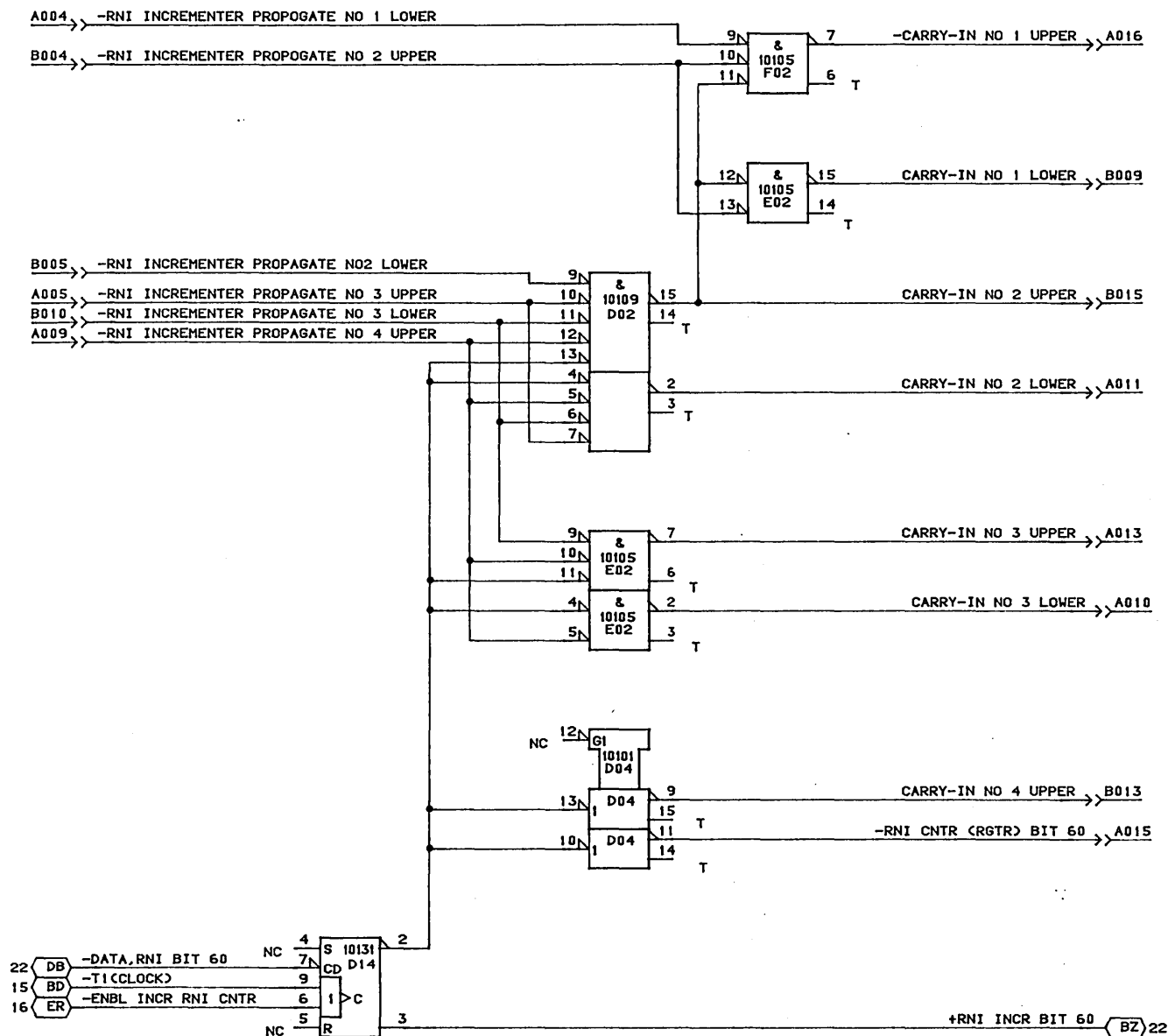


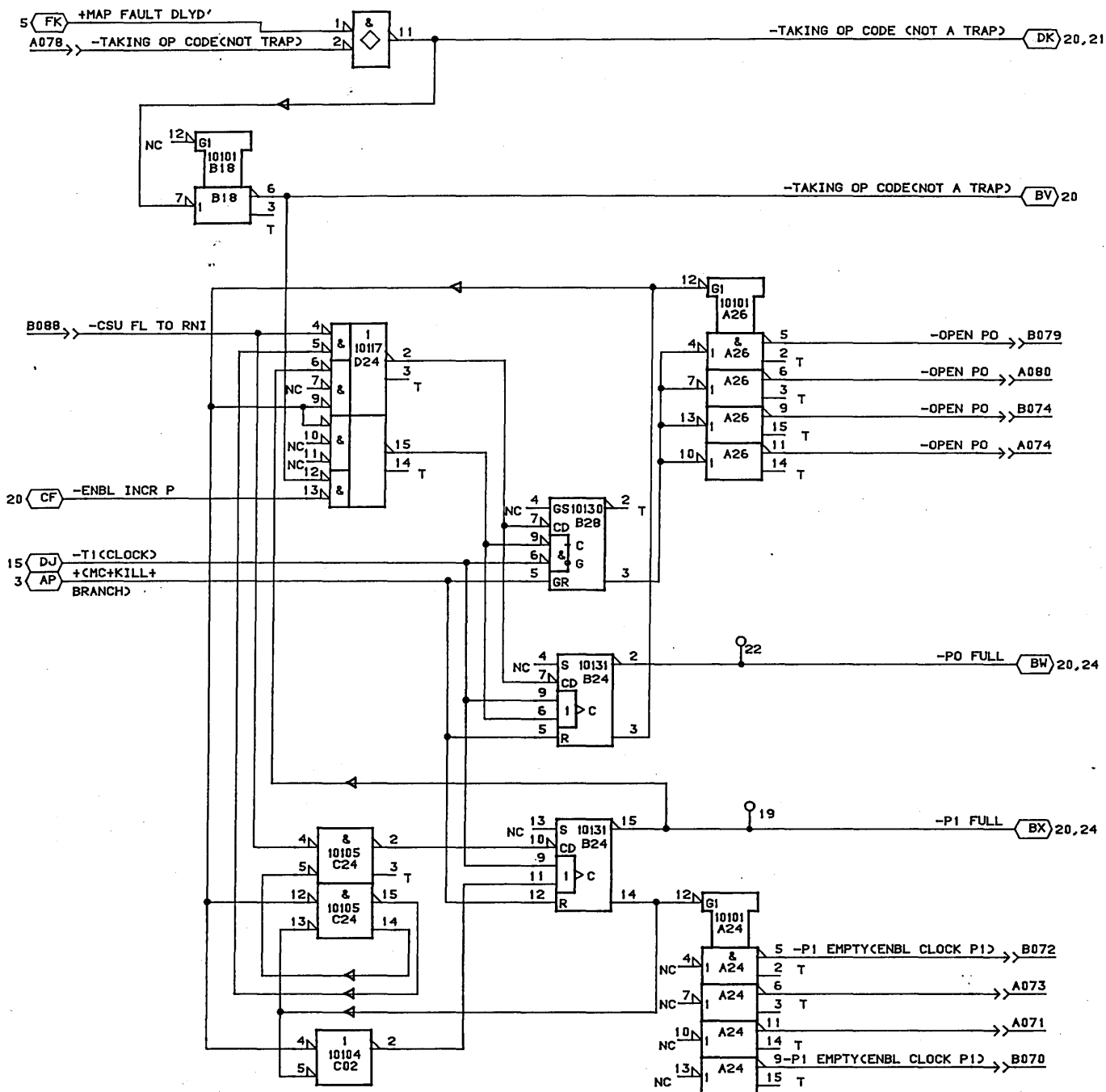
CONTROL  
DATA  
CANADA  
LTD

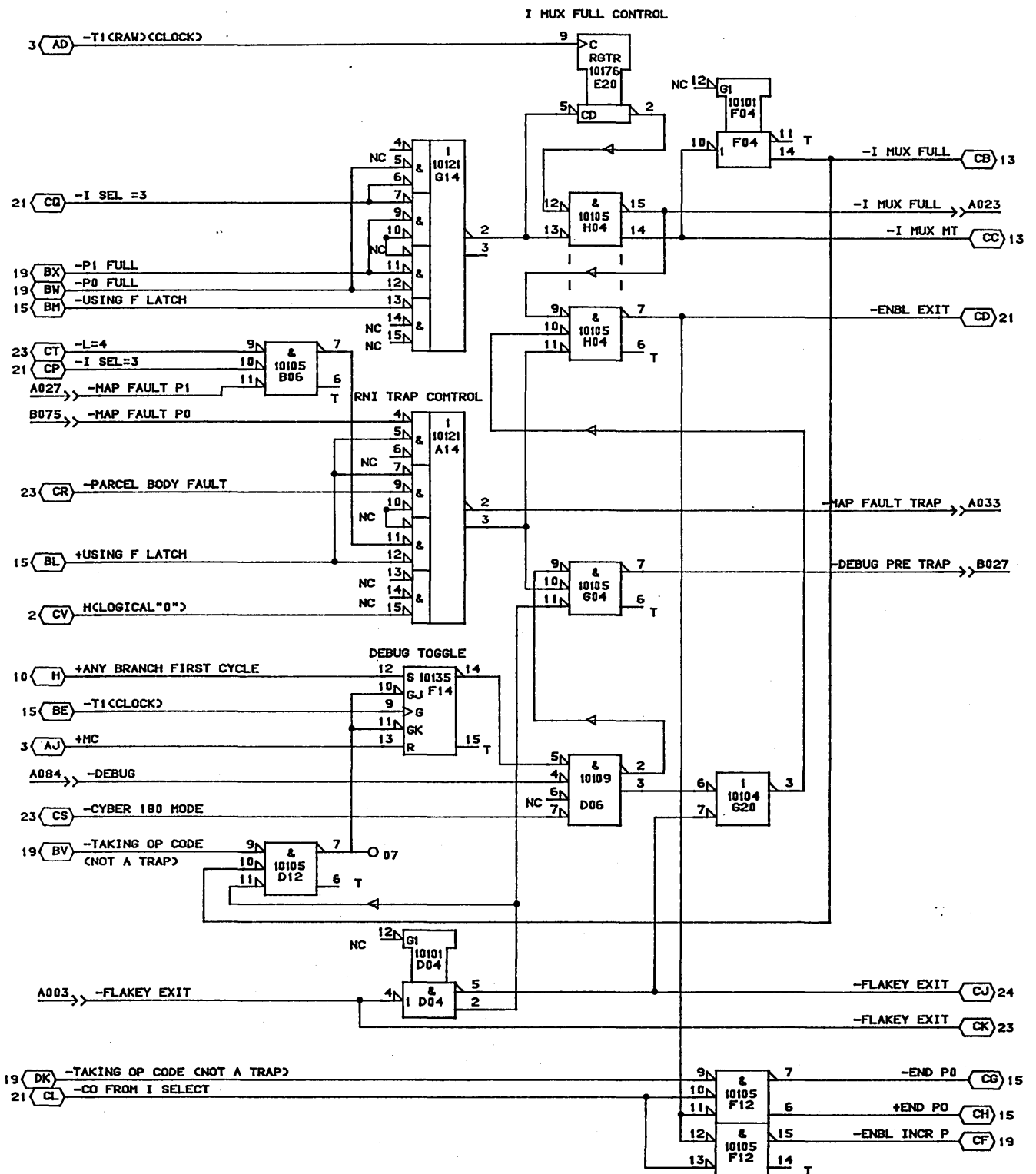
P RSTR CONTROL  
MODULE ASSY-210 PAK'  
TYPE: 2GA0

	C		C
06-MAR-85	SHEET 17		

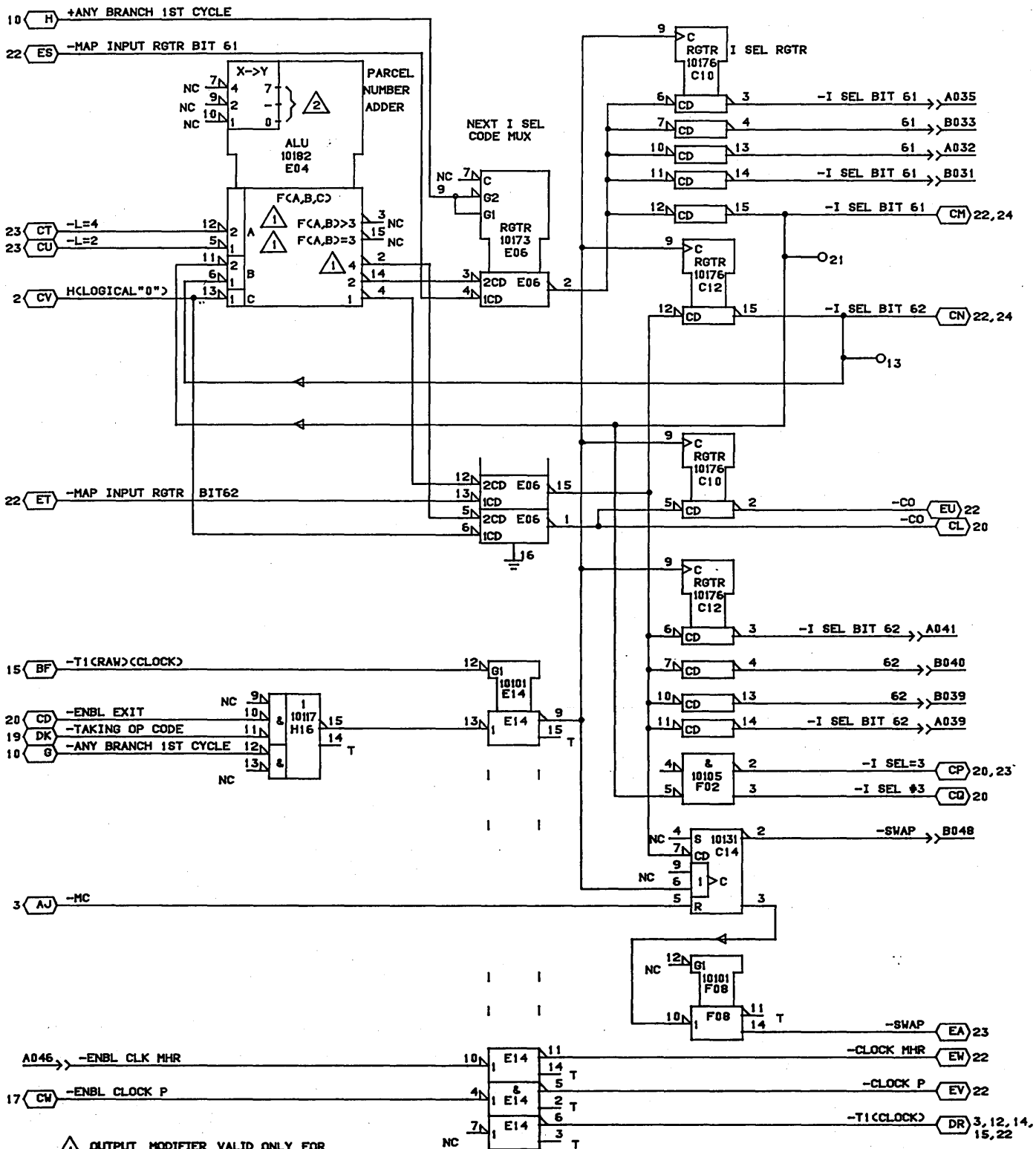








CONTROL DATA CANADA LTD	I MUX FULL, RNI TRAP CONTROL MODULE ASSY-210 PAK' TYPE: 26A0	C		C	
		06-MAR-85		SHEET 20	

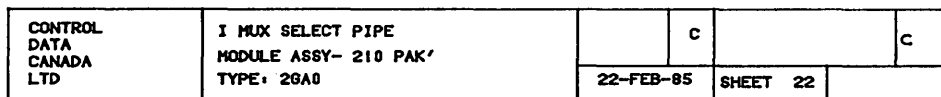


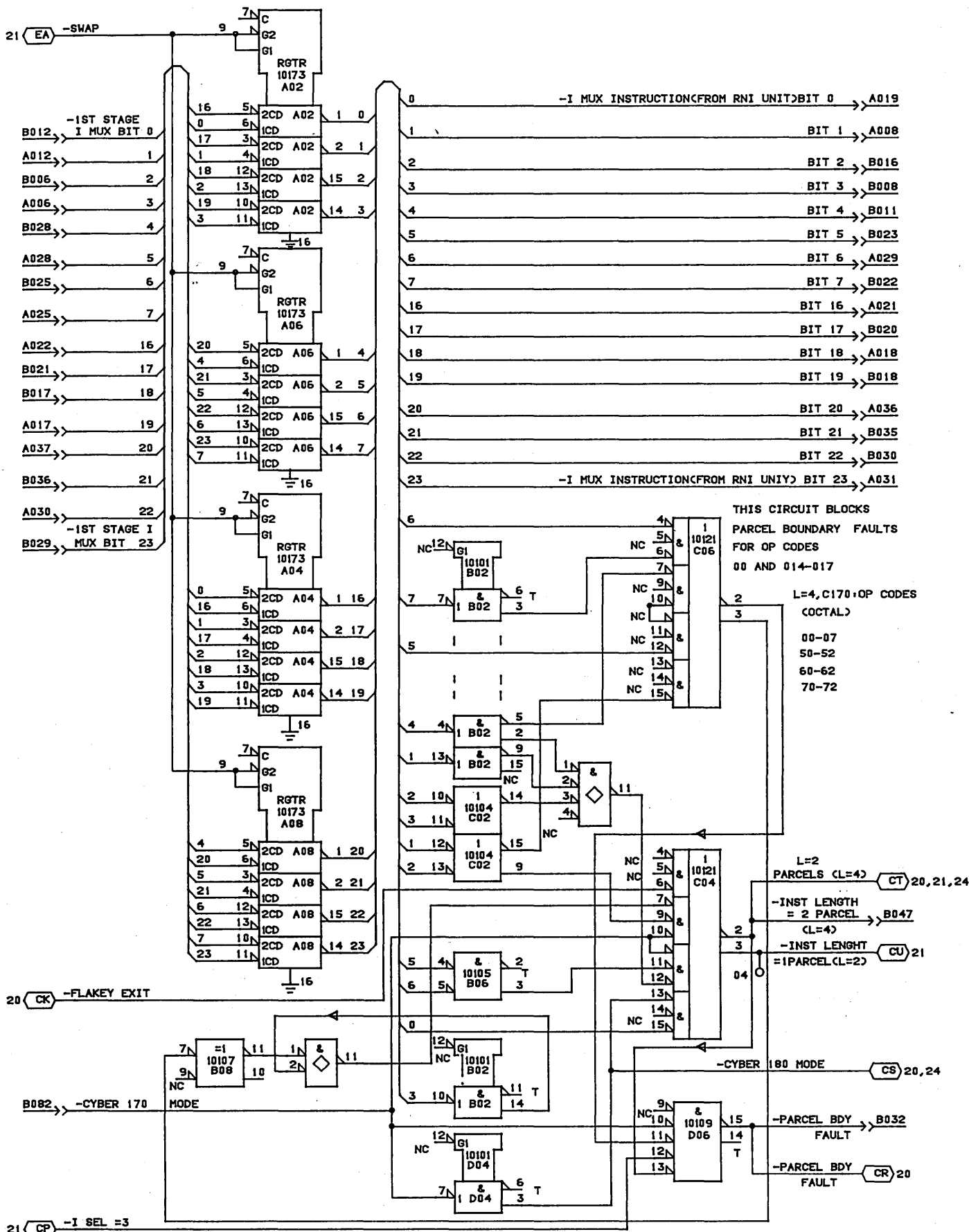
CONTROL  
DATA  
CANADA  
LTD

I SEL CKT  
MODULE ASSY- 210 PAK'  
TYPE 20A0

22-FEB-85

SHEET 21







MAINT SCAN CKT  
MODULE ASSY- 210 PAK'  
TYPE: 2GA0

22-FEB-85

SHEET 24

10

## MAP FUNCTION DECODE ROMS FOR 2GAO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 G40 19266965  
2 F40 19266867

## ADDR CONTENTS

00 80  
01 00  
02 80  
03 00  
04 80  
05 00  
06 80  
07 00  
08 80  
09 00  
0A 80  
0B 00  
0C 80  
0D 00  
0E 80  
0F 00  
10 80  
11 00  
12 80  
13 00  
14 80  
15 00  
16 80  
17 00  
18 80  
19 00  
1A 80  
1B 00  
1C 80  
1D 00  
1E 80  
1F 00  
20 80  
21 00  
22 80  
23 00  
24 80  
25 00  
26 80  
27 00  
28 80  
29 00  
2A 80  
2B 00  
2C 80  
2D 00  
2E 80  
2F 00  
30 80  
31 00  
32 80  
33 00  
34 80  
35 00  
36 80  
37 00  
38 80  
39 00  
3A 80  
3B 00  
3C 80  
3D 00  
3E 80  
3F 00

## ADDR CONTENTS

40 F0  
41 00  
42 C0  
43 00  
44 C0  
45 00  
46 80  
47 00  
48 80  
49 00  
4A 80  
4B 00  
4C 80  
4D 00  
4E 80  
4F 00  
50 C0  
51 00  
52 80  
53 00  
54 80  
55 00  
56 80  
57 00  
58 40  
59 00  
5A 80  
5B 00  
5C 80  
5D 00  
5E 80  
5F 00  
60 6A  
61 02  
62 80  
63 00  
64 80  
65 00  
66 80  
67 00  
68 A0  
69 00  
6A 80  
6B 00  
6C 80  
6D 00  
6E 80  
6F 00  
70 F1  
71 80  
72 80  
73 00  
74 80  
75 00  
76 80  
77 00  
78 69  
79 C2  
7A 80  
7B 00  
7C 80  
7D 00  
7E 80  
7F 00

## ADDR CONTENTS

80 80  
81 00  
82 00  
83 00  
84 80  
85 00  
86 80  
87 00  
88 80  
89 00  
8A 80  
8B 00  
8C 80  
8D 00  
8E 80  
8F 80  
90 80  
91 00  
92 80  
93 00  
94 80  
95 00  
96 80  
97 00  
98 80  
99 00  
9A 80  
9B 00  
9C 80  
9D 00  
9E 80  
9F 00  
A0 80  
A1 00  
A2 80  
A3 00  
A4 80  
A5 00  
A6 80  
A7 00  
A8 D6  
A9 00  
AA D7  
AB 00  
AC AA  
AD 00  
AE 80  
AF 00  
B0 88  
B1 00  
B2 80  
B3 00  
B4 80  
B5 00  
B6 80  
B7 00  
B8 80  
B9 00  
BA 80  
BB 00  
BC 80  
BD 00  
BE 80  
BF 00

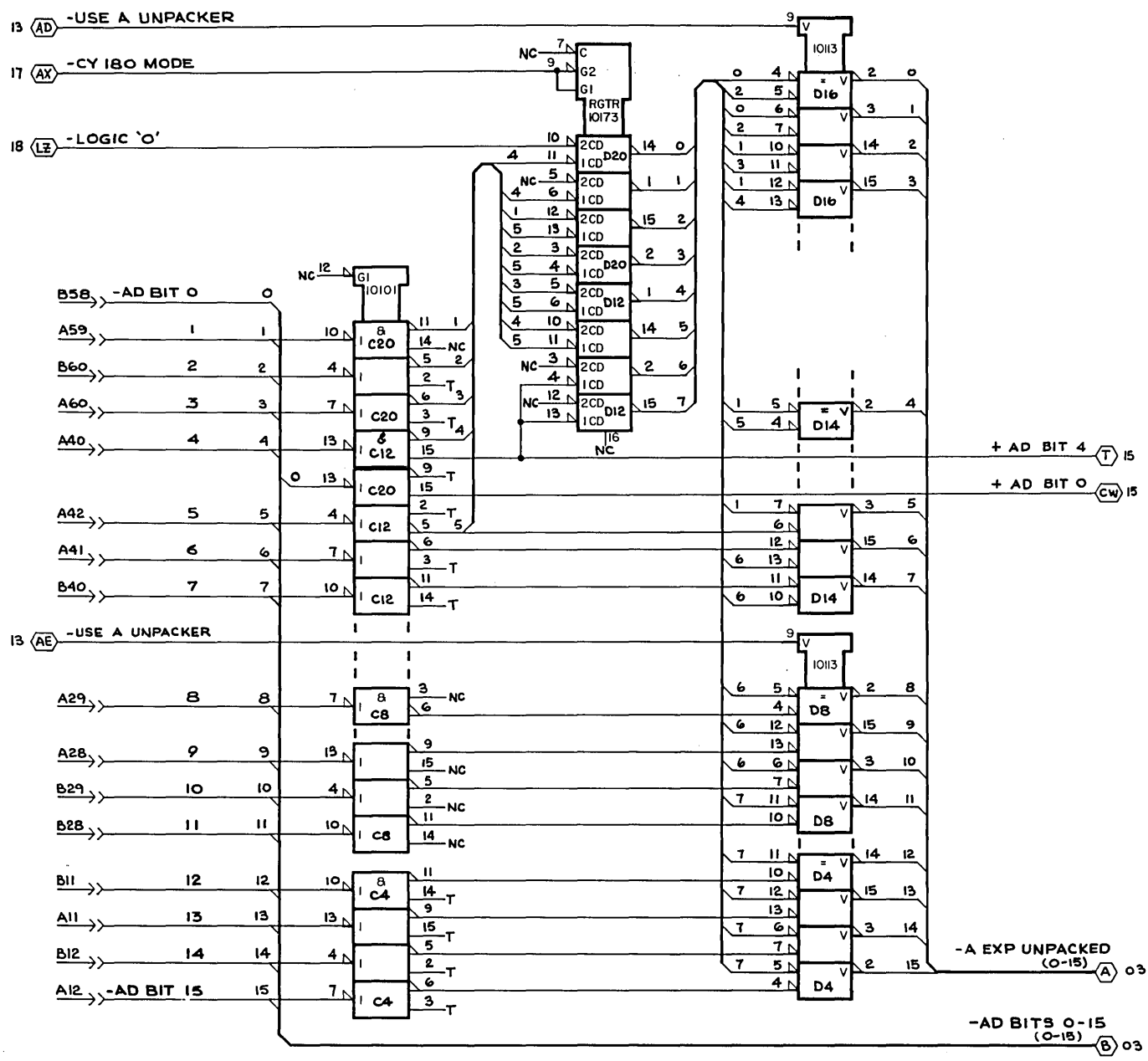
## ADDR CONTENTS

C0 C0  
C1 00  
C2 40  
C3 02  
C4 80  
C5 00  
C6 E0  
C7 F0  
C8 E0  
C9 F0  
CA E2  
CB F0  
CC F0  
CD F0  
CE E0  
CF F0  
D0 D2  
D1 80  
D2 80  
D3 00  
D4 80  
D5 00  
D6 80  
D7 00  
D8 80  
D9 00  
DA 80  
DB 00  
DC 80  
DD 00  
DE 80  
DF 00  
E0 F2  
E1 80  
E2 F0  
E3 00  
E4 80  
E5 02  
E6 E0  
E7 00  
E8 F6  
E9 00  
EA F2  
EB 00  
EC 6A  
ED 02  
EE 69  
EF E2  
F0 80  
F1 F0  
F2 78  
F3 04  
F4 78  
F5 05  
F6 40  
F7 04  
F8 40  
F9 05  
FA C0  
FB 09  
FC C0  
FD 0A  
FE 41  
FF 92



D

A UNPACK



A

4

3

2

1

## A MUX

13 (AH) -SEL A UNPACKER

A EXP UNPACKED  
(0-15)

02 (A)

A72 - COPY OF AD BIT 46

A75 47

B68 48

A68 49

B64 50

A67 51

B49 52

A58 53

B57 54

A50 55

A36 56

B35 57

A33 58

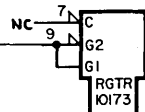
B33 59

B18 60

A18 61

B19 62

A20 - COPY OF AD BIT 63



## ENCODE TABLE

A0	A1	A2	EXP
0	0	0	+N
0	0	1	-N
0	1	0	+IND
0	1	1	-IND
1	0	0	+∞
1	0	1	-∞
1	1	0	+0
1	1	1	-0

-S ADDER A INPUT  
(0-17)

06

17 (AY) -CY 170 MODE

02 (B) -AD BITS 0-15 (0-15)

## A EXP ENCODE

B53 -ROM ENABLE  
(FOR PAK TEST)

-A EXPONENT ENCODE A0 B41

-A EXPONENT ENCODE A1 A51

-A EXPONENT ENCODE A2 B50

-(IND+INF) A46

-A EXPONENT LOWER SAME A19

-A EXPONENT UPPER SAME B51

05

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION

**CD**  
CONTROL  
DATA

**A MUX, A EXP ENCODE**

MODULE ASSY - 210 PAK  
TYPE 8TC0

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

03

4

3

2

1

4

3

2

1

## B UNPACK

13 (AF) -USE B UNPACKER

17 (AX) -CY 180 MODE

18 (LZ) -LOGIC '0'

B61 &gt;&gt; \* -BD BIT 1

B56 &gt;&gt; \* 2

A61 &gt;&gt; \* 3

B43 &gt;&gt; \* 5

A45 &gt;&gt; \* 6

B39 &gt;&gt; \* 7

A39 &gt;&gt; \* 4

A57 &gt;&gt; \* 0

13 (AG) -USE B UNPACKER

B30 &gt;&gt; \* 8

B26 &gt;&gt; \* 9

A27 &gt;&gt; \* 10

A31 &gt;&gt; \* 11

B10 &gt;&gt; \* 12

A10 &gt;&gt; \* 13

B13 &gt;&gt; \* 14

A13 &gt;&gt; \* -BD BIT 15

NOTE: \* THESE MUST BE SHORT  
AND NO TERMINATOR.  
PLACE CHIPS IN A OR B  
COLUMNS

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

## B EXP UNPACK

MODULE ASSY -210 PAK  
TYPE BT CO

CODE IDENT.  
34570

DWG. NO.

C

REV

A

SHEET 04

4

3

2

1

4

3

2

1

13 (A) -SEL B UNPACKER

B MUX

\* NOTE : SHORT AND NO TERMINATOR

04 (C) C EXP UNPACKED  
(0-15)

A76	*	-COPY OF BD BIT 46	0	12	2CD	15	0
A73	*	47	0	10	1CD	14	1
B69	*	48	0	11	2CD	2	2
A69	*	49	1	5	1CD	1	3
A64	*	50	2	12	2CD	15	4
B65	*	51	3	10	1CD	14	5
B46	*	52	4	11	2CD	14	6
A52	*	53	5	5	1CD	1	7
B52	*	54	6	12	2CD	15	8
A47	*	55	7	3	1CD	2	9
B36	*	56	8	3	2CD	2	10
A32	*	57	9	10	1CD	14	11
B32	*	58	10	12	2CD	15	12
A37	*	59	11	5	1CD	1	13
B15	*	60	12	5	2CD	1	14
A16	*	61	13	3	1CD	2	15
A22	*	62	14	12	2CD	15	16
B21	*	-COPY OF BD BIT 63	15	10	1CD	14	17

ENCODE TABLE			
B0	B1	B2	EXP
0	0	0	+N
0	0	1	-N
0	1	0	+IND
0	1	1	-IND
1	0	0	+∞
1	0	1	-∞
1	1	0	+0
1	1	1	-0

-S ADDER B INPUT  
(0-17)17 (AY) -CY 170 MODE  
04 (D) +BD BITS 0-15 (0-15)B EXP  
ENCODE03 (RE) -ROM ENABLE  
(FOR PAK TEST)

-B EXPONENT ENCODE B0 → B47  
 B1 → A48  
 -B EXPONENT ENCODE B2 → B48  
 -(IND + INF) → A55

-B EXPONENT LOWER SAME → A17

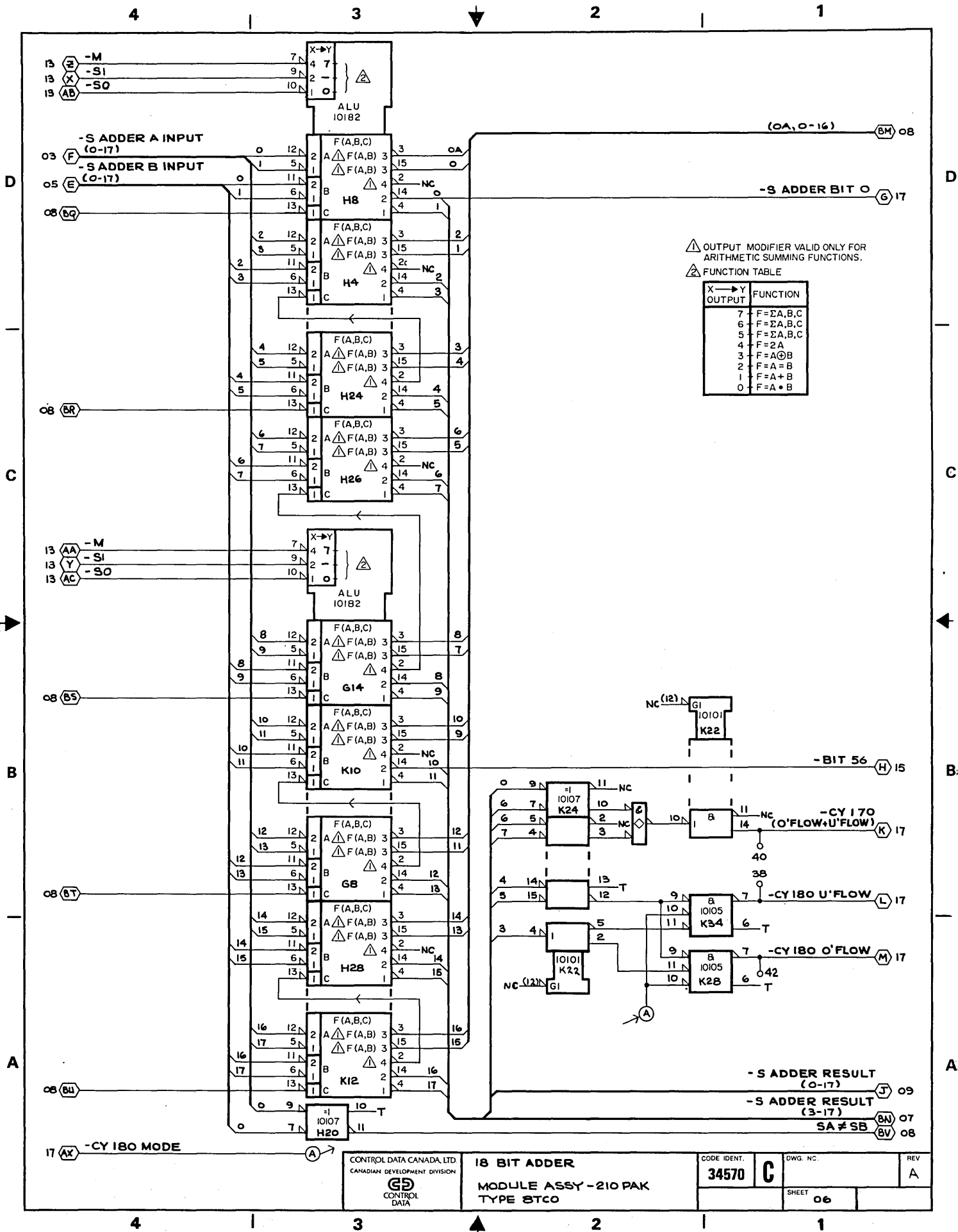
-B EXPONENT UPPER SAME → A49

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL DATA

**18 BIT ADDER**  
MODULE ASSY - 210 PAK  
TYPE 8TCO

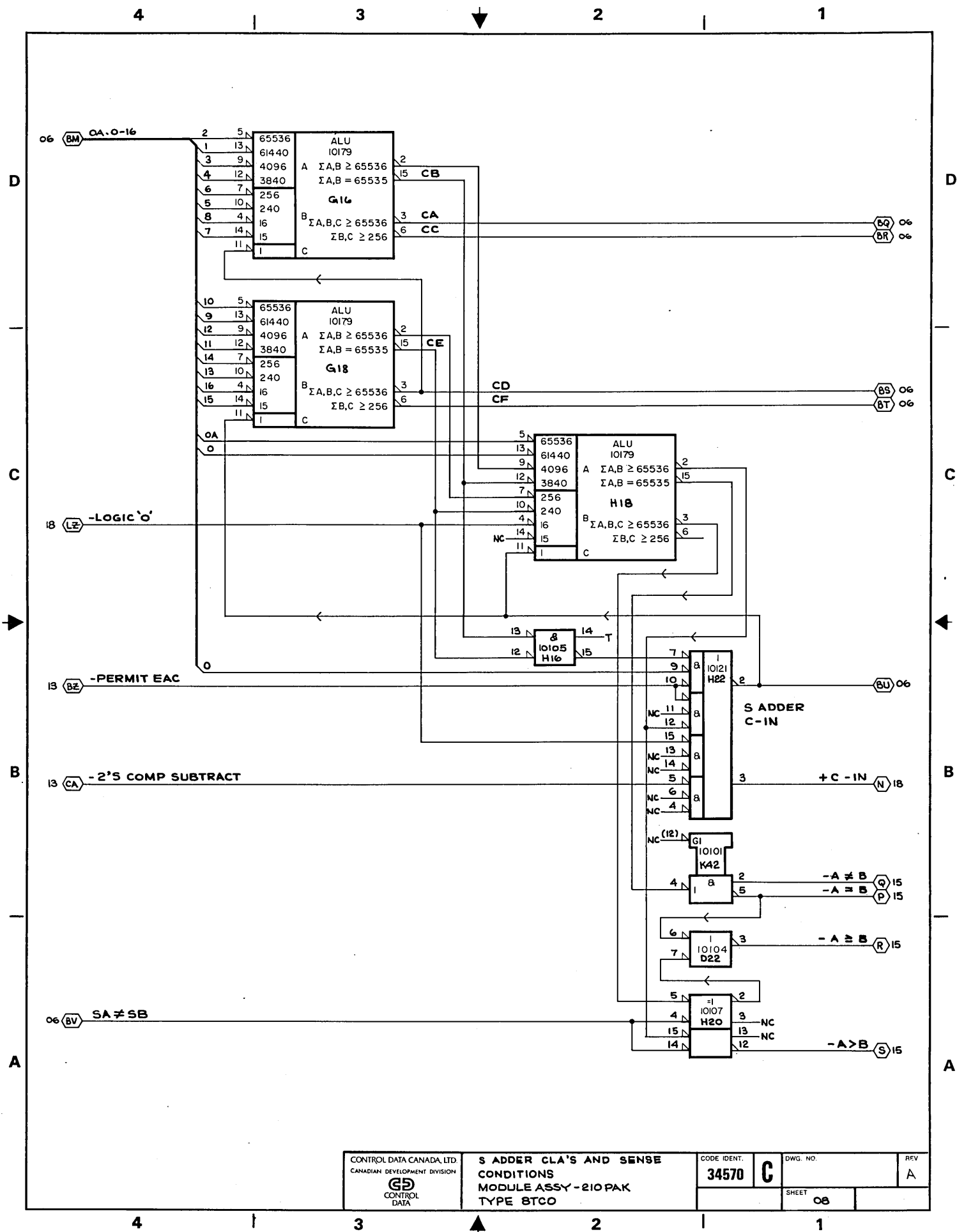
CODE IDENT.  
**34570**

DWG. NO.  
**C**

SHEET  
**06**

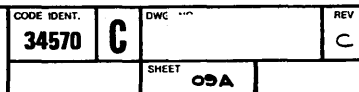
REV  
**A**

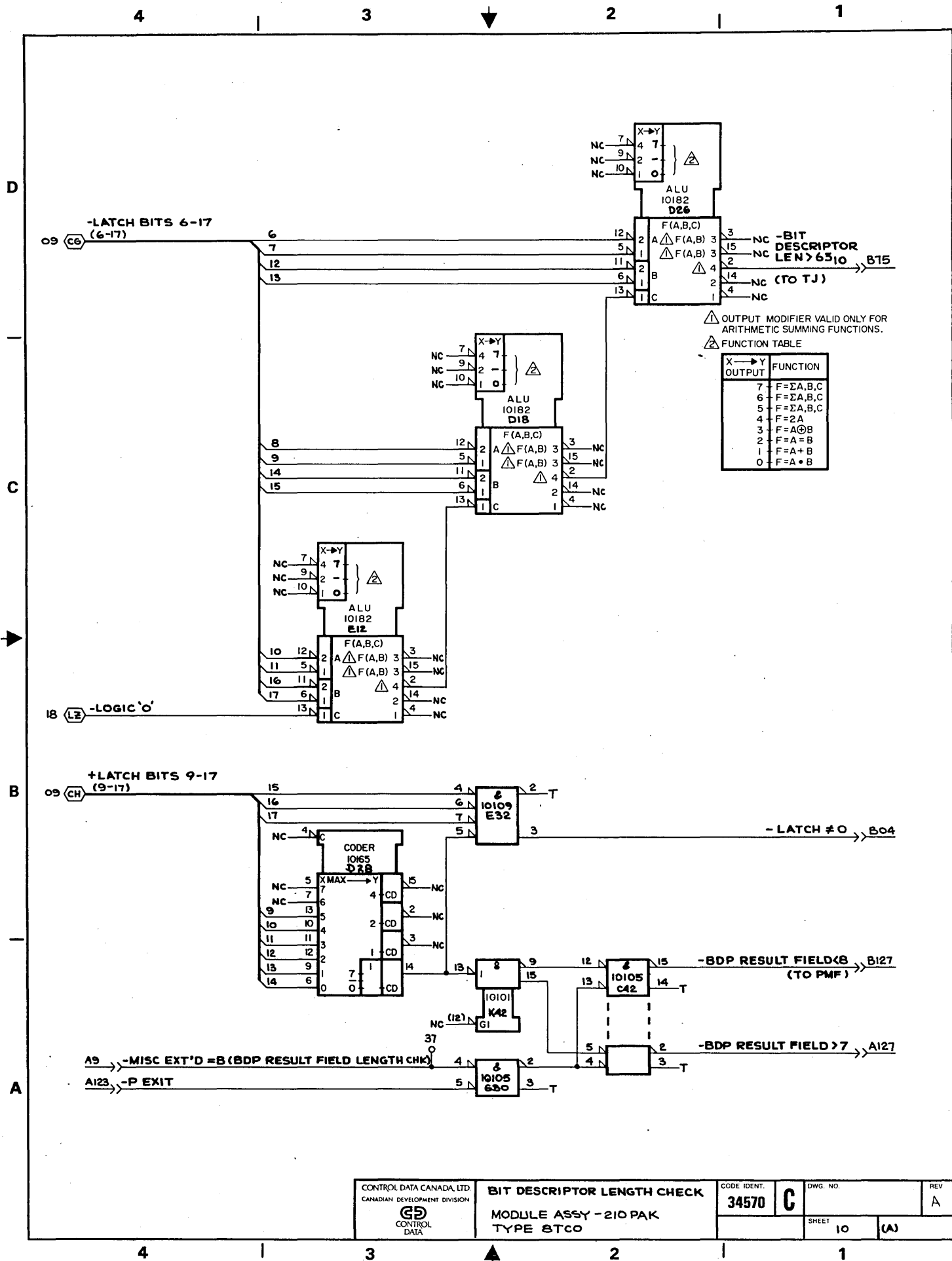


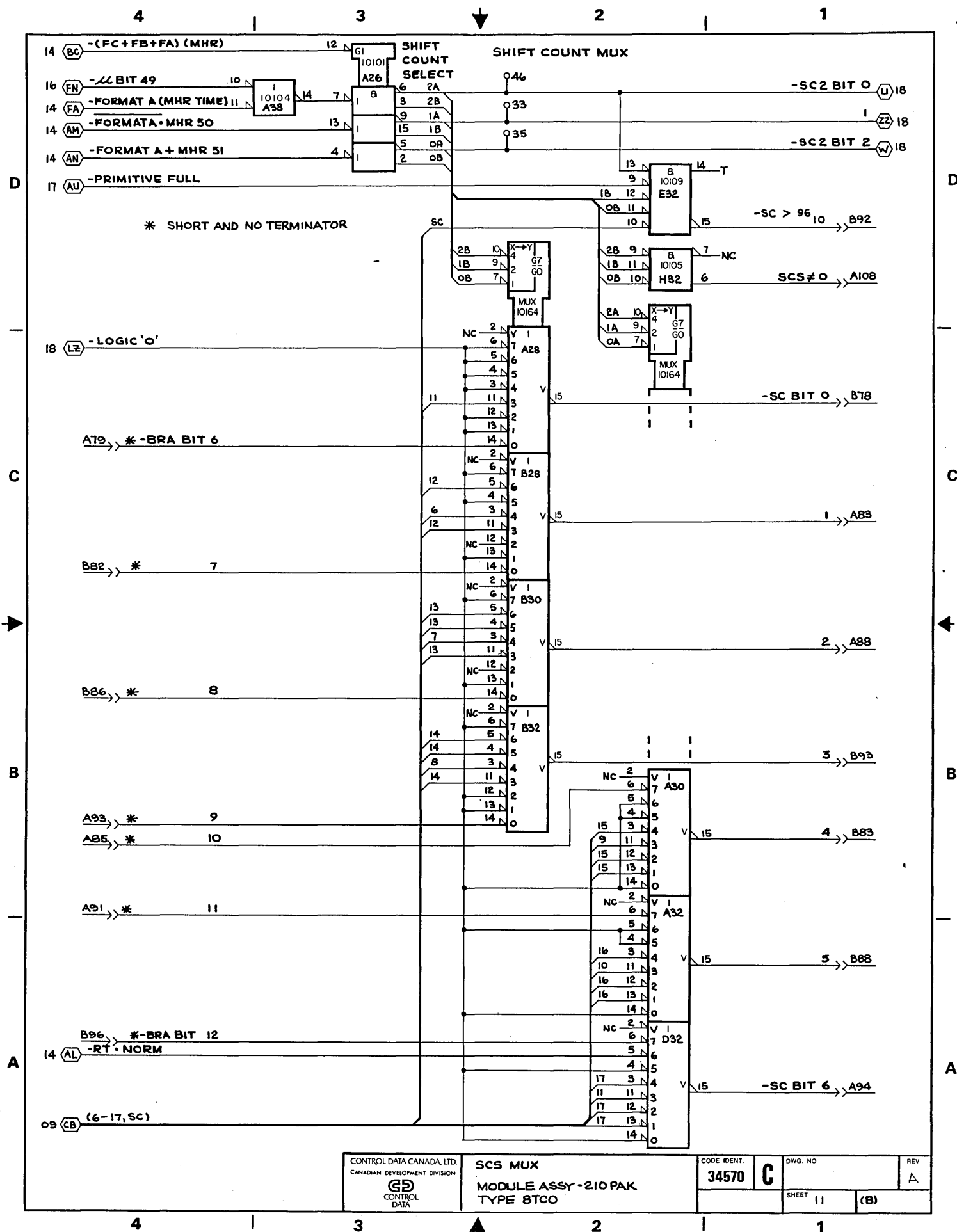


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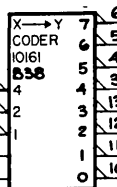


4

3

2

1

S ADDER  
FUNCTION

A114 \* -MHR 39  
B115 \* -MHR 40  
A116 \* -MHR 41

14 CC -FORMAT A + E @ MHR

17 BY -CY170 MODE

17 UA -CY180 MODE

18 LZ -LOGIC '0'

B114 \* -MHR 46  
14 FA -FORMAT A @ MHR

B115 \* -MHR 47

NOTE: \* SHORT AND  
DO NOT TERMINATE.  
PLACE CHIPS IN  
COLUMNS A OR B.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

S ADDER FUNCTION  
MODULE ASSY-210 PAK  
TYPE 8TCO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

12

(C)

4

3

2

1

4

3

2

1

D

D

C

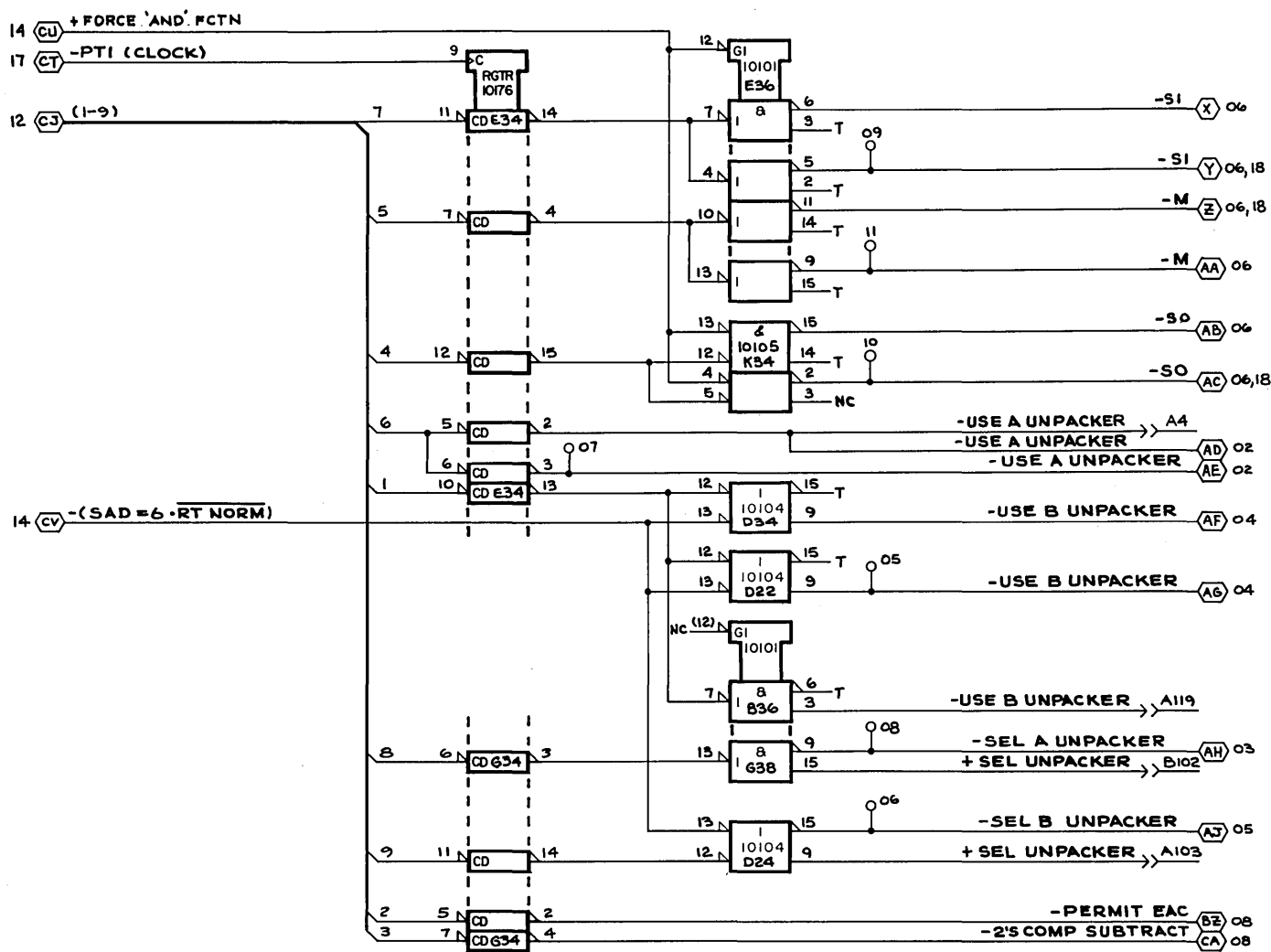
C

B

B

A

A



CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

SELECTS AND S ADDER CNTL  
MODULE ASSY - 210 PAK  
TYPE 8TCO

CODE IDENT.  
**34570**

**C**

DWG. NO.

SHEET **13**

(D)

REV  
**A**

4

3

2

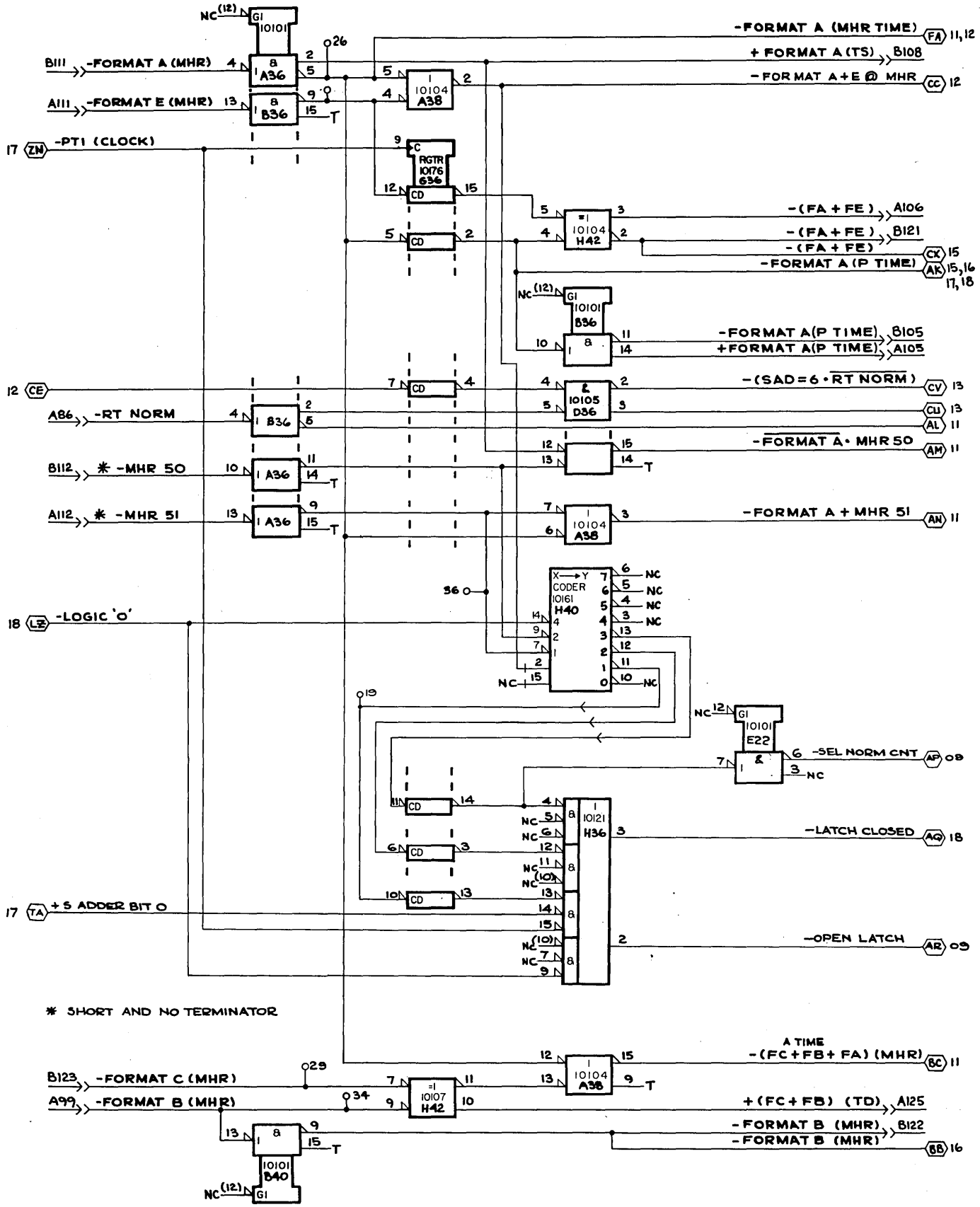
1

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2

1



\* SHORT AND NO TERMINATOR

NOTE : THIS DRAWING IS APPLICABLE  
ONLY TO PWB P/N 19267267.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

LATCH FUNCTION  
MODULE ASSY - 210 PAK  
TYPE 8TC0

CODE IDENT.  
34570

C

DWG. NO.

SHEET 14

(E)

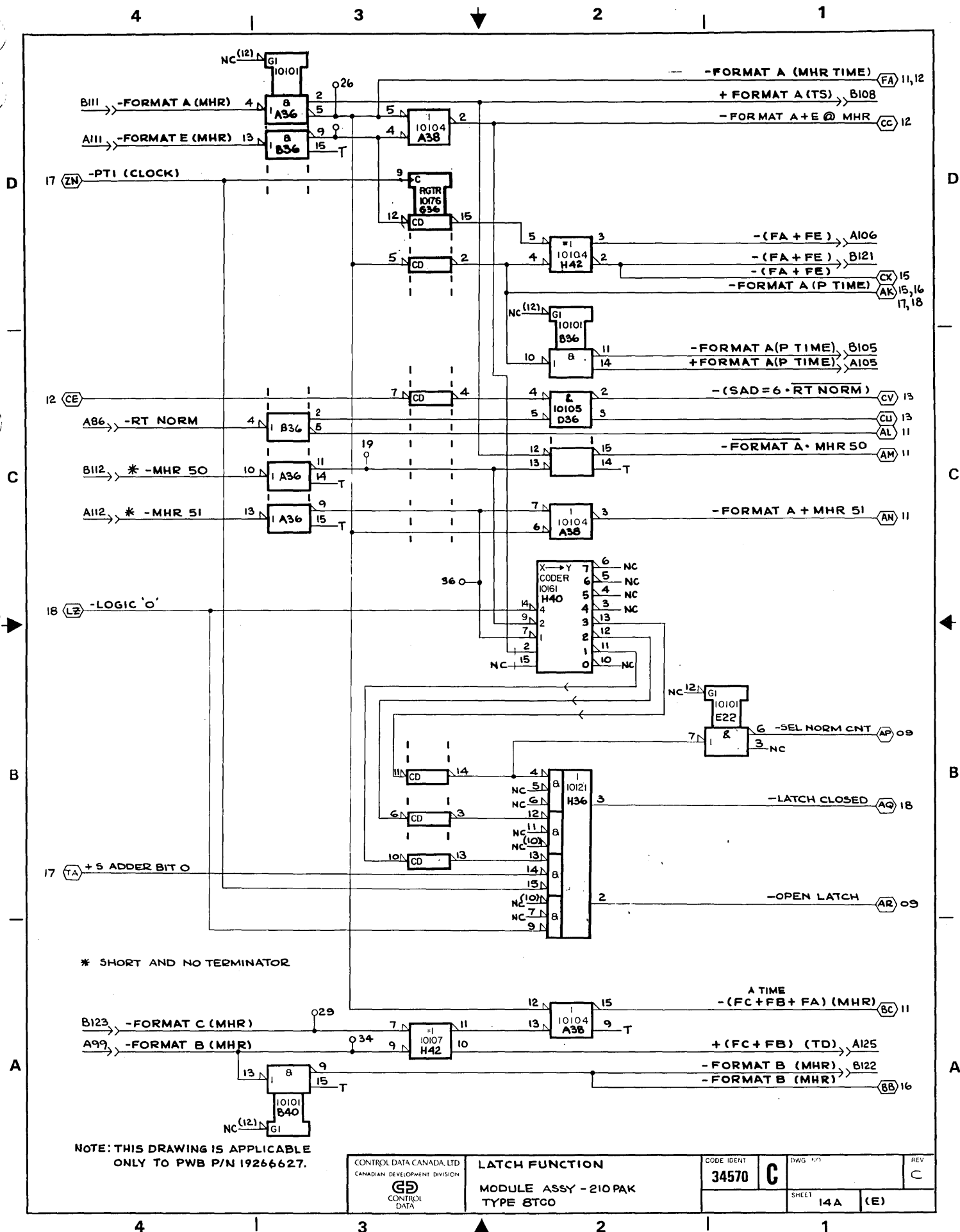
REV  
C

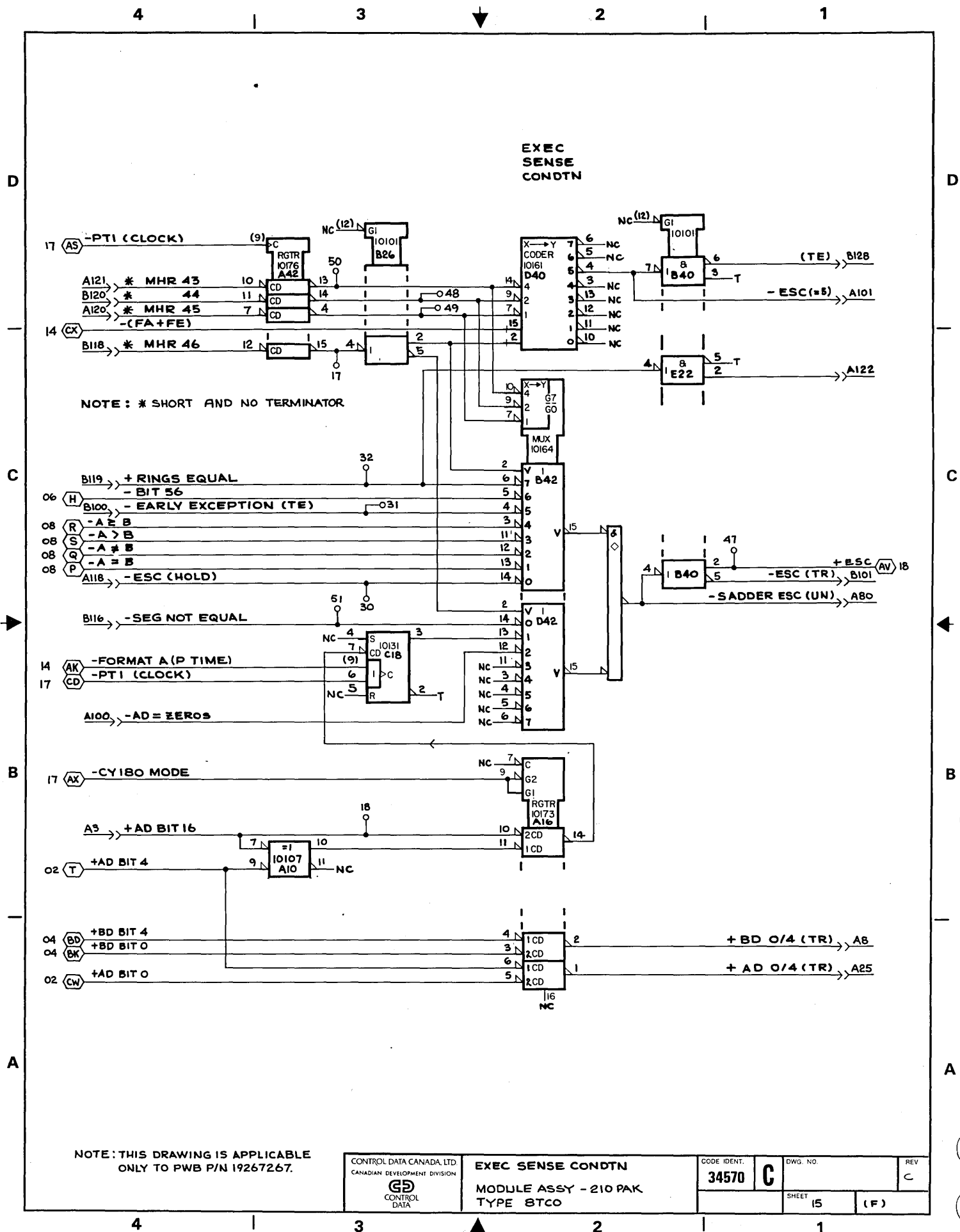
4

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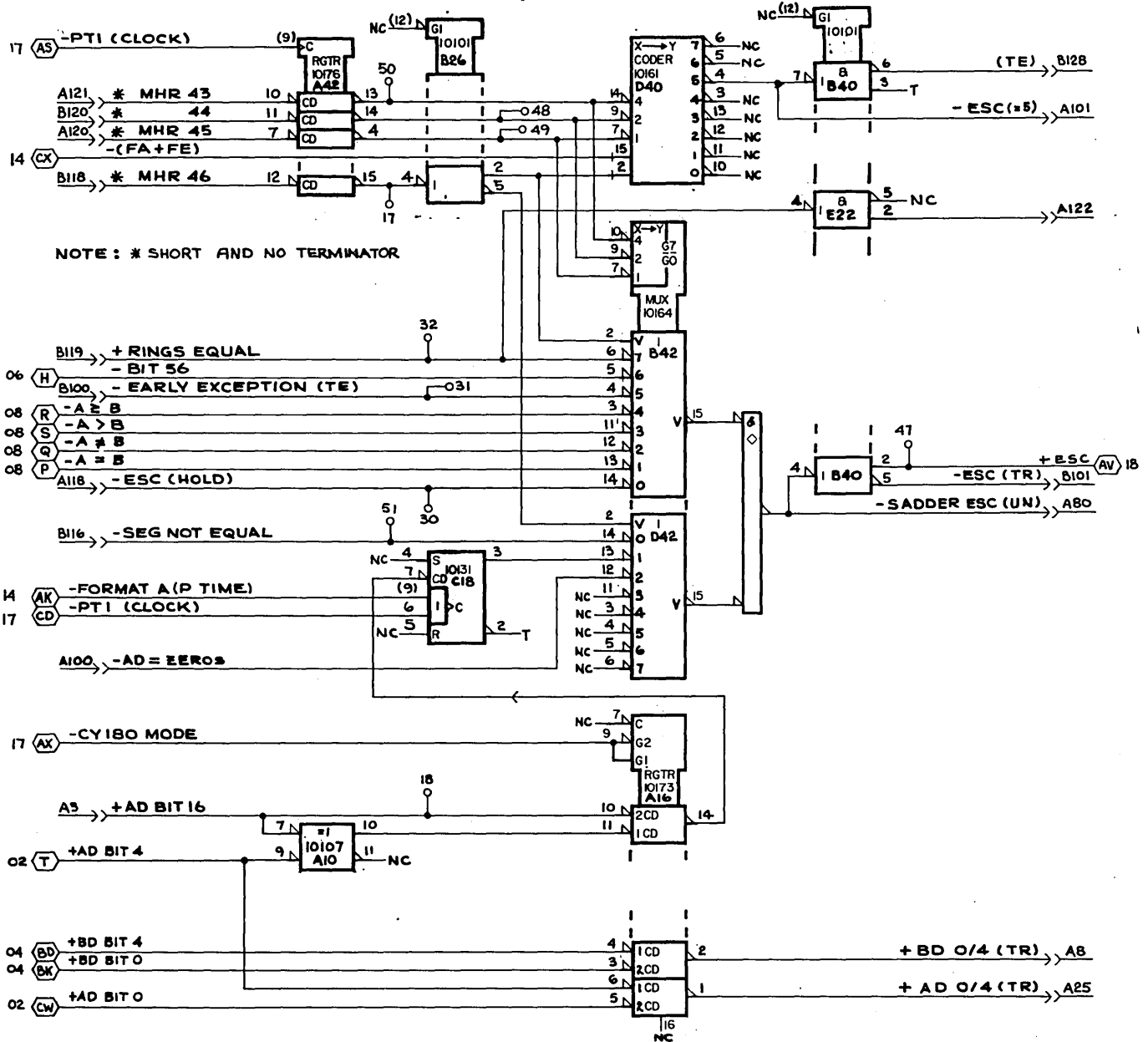


4

3

2

1

EXEC  
SENSE  
COND TN

NOTE: THIS DRAWING IS APPLICABLE  
ONLY TO PWB P/N 19266627.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

EXEC SENSE COND TN  
MODULE ASSY - 210 PAK  
TYPE 8TCO

CODE IDENT.  
34570

DWG NO.  
C

REV  
C

SHEET  
15A

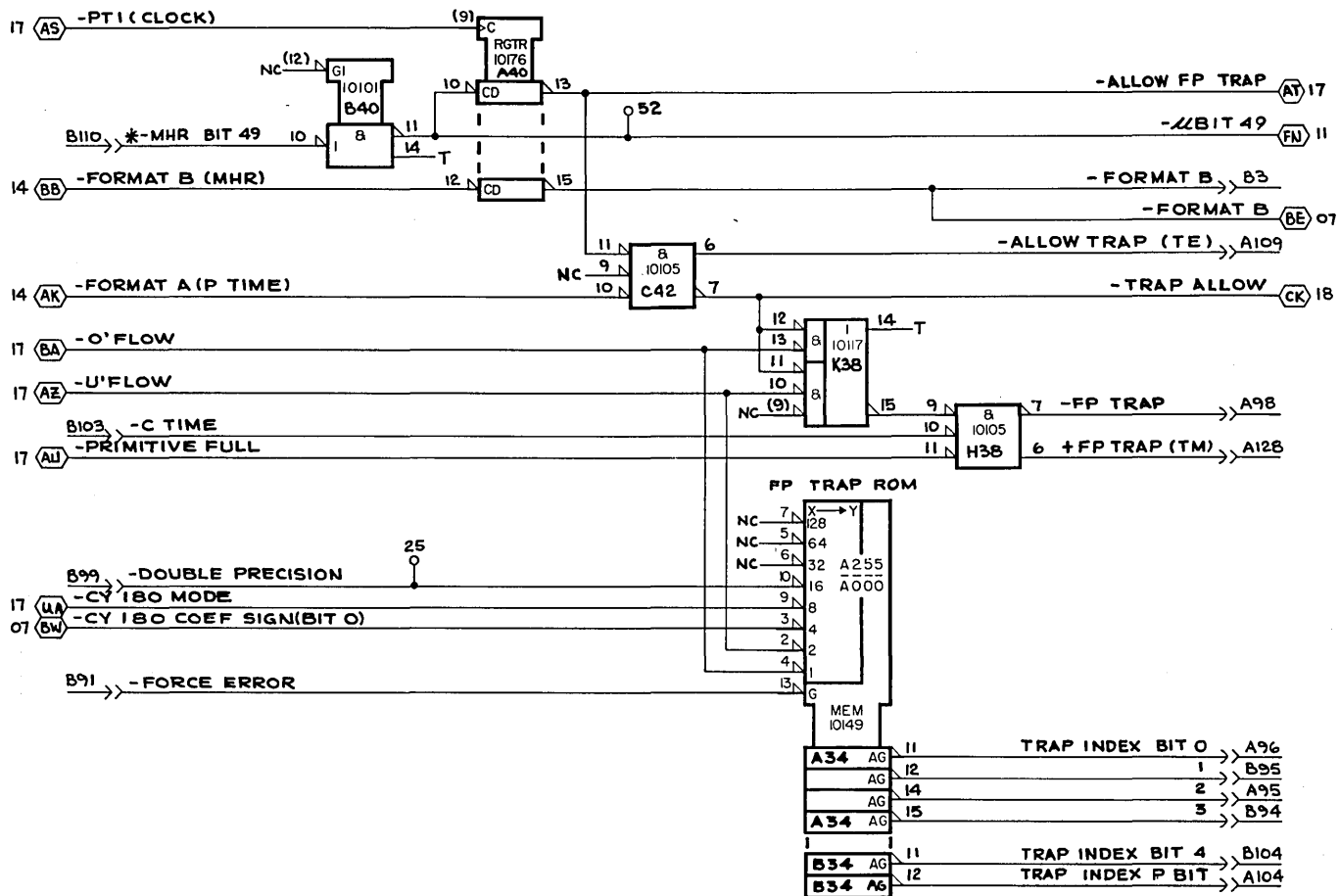
(F)

4

3

2

1



NOTE: \* SHORT AND  
DO NOT TERMINATE

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

FP TRAP ROM  
MODULE ASSY - 210 PAK  
TYPE 8TCO

CODE IDENT.

34570

DWG. NO.

C

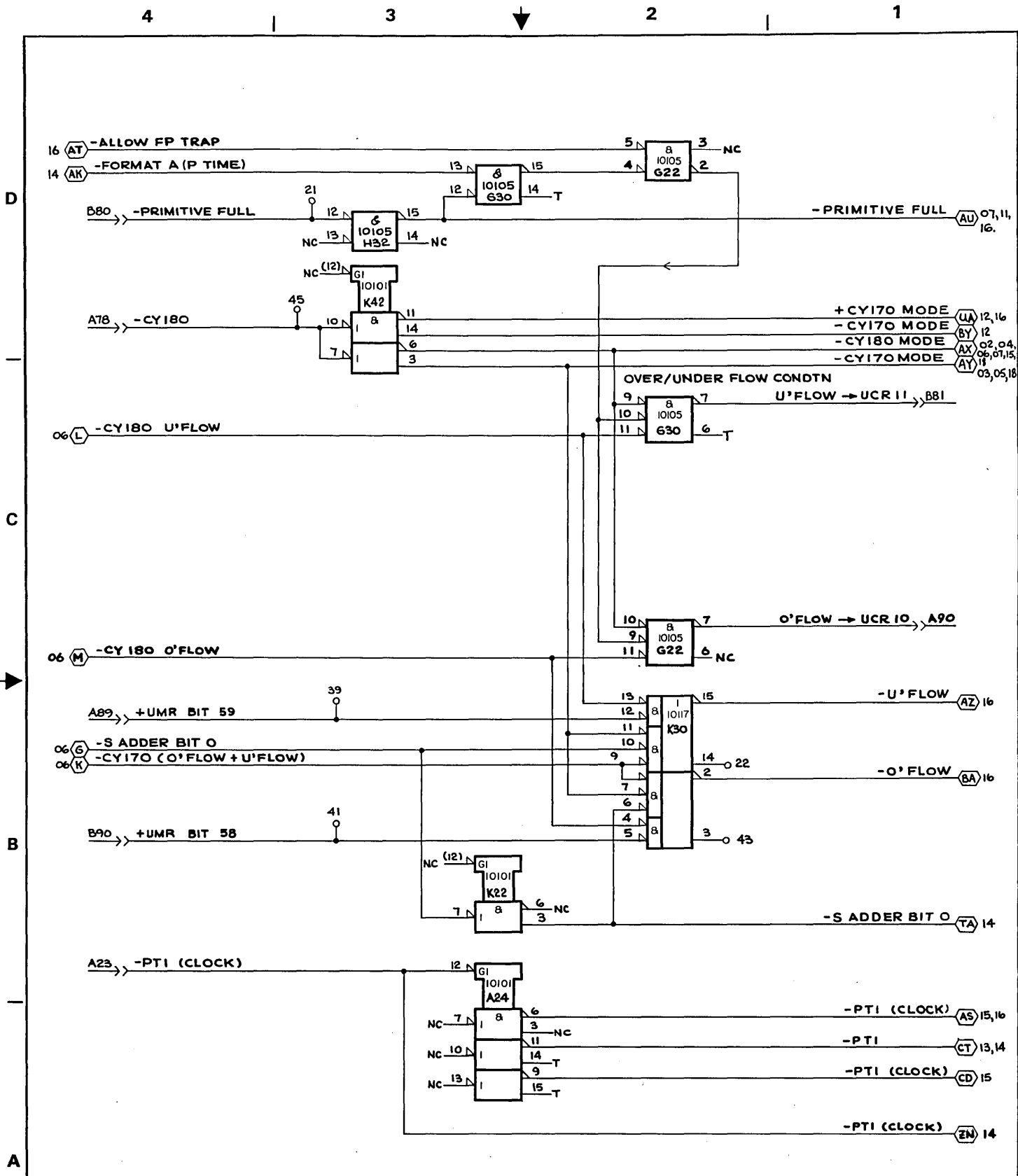
REV

A

SHEET

16

(G)



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

MODULE ASSY - 210 PAK  
TYPE 8TC0

CODE IDENT.	DWG. NO.	REV
34570	C	A
SHEET	(H)	
17		



4

3

2

1

## FP TRAP INDEX ROM FOR 8TC0

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 A34 19266810  
 2 B34 19266811

## ADDR CONTENTS

00 00  
 01 3C  
 02 48  
 03 00  
 04 00  
 05 44  
 06 48  
 07 00  
 08 00  
 09 9C  
 0A 90  
 0B 00  
 0C 00  
 0D A0  
 0E 90  
 0F 00  
 10 00  
 11 3C  
 12 48  
 13 00  
 14 00  
 15 44  
 16 48  
 17 00  
 18 00  
 19 B4  
 1A AC  
 1B 00  
 1C 00  
 1D B8  
 1E AC  
 1F 00  
 20 00  
 21 3C  
 22 48  
 23 00  
 24 00  
 25 44  
 26 48  
 27 00  
 28 00  
 29 9C  
 2A 90  
 2B 00  
 2C 00  
 2D A0  
 2E 90  
 2F 00  
 30 00  
 31 3C  
 32 48  
 33 00  
 34 00  
 35 44  
 36 48  
 37 00  
 38 00  
 39 B4  
 3A AC  
 3B 00  
 3C 00  
 3D B8  
 3E AC  
 3F 00

## ADDR CONTENTS

40 00  
 41 3C  
 42 48  
 43 00  
 44 00  
 45 44  
 46 48  
 47 00  
 48 00  
 49 9C  
 4A 90  
 4B 00  
 4C 00  
 4D A0  
 4E 90  
 4F 00  
 50 00  
 51 3C  
 52 48  
 53 00  
 54 00  
 55 44  
 56 48  
 57 00  
 58 00  
 59 B4  
 5A AC  
 5B 00  
 5C 00  
 5D B8  
 5E AC  
 5F 00  
 60 00  
 61 3C  
 62 48  
 63 00  
 64 00  
 65 44  
 66 48  
 67 00  
 68 00  
 69 9C  
 6A 90  
 6B 00  
 6C 00  
 6D A0  
 6E 90  
 6F 00  
 70 00  
 71 3C  
 72 48  
 73 00  
 74 00  
 75 44  
 76 48  
 77 00  
 78 00  
 79 B4  
 7A AC  
 7B 00  
 7C 00  
 7D B8  
 7E AC  
 7F 00

## ADDR CONTENTS

80 00  
 81 3C  
 82 48  
 83 00  
 84 00  
 85 44  
 86 48  
 87 00  
 88 00  
 89 9C  
 8A 90  
 8B 00  
 8C 00  
 8D A0  
 8E 90  
 8F 00  
 90 00  
 91 3C  
 92 48  
 93 00  
 94 00  
 95 44  
 96 48  
 97 00  
 98 00  
 99 B4  
 9A AC  
 9B 00  
 9C 00  
 9D B8  
 9E AC  
 9F 00  
 A0 00  
 A1 3C  
 A2 48  
 A3 00  
 A4 00  
 A5 44  
 A6 48  
 A7 00  
 A8 00  
 A9 9C  
 AA 90  
 AB 00  
 AC 00  
 AD A0  
 AE 90  
 AF 00  
 B0 00  
 B1 3C  
 B2 48  
 B3 00  
 B4 00  
 B5 44  
 B6 48  
 B7 00  
 B8 00  
 B9 B4  
 BA AC  
 BB 00  
 BC 00  
 BD B8  
 BE AC  
 BF 00

## ADDR CONTENTS

C0 00  
 C1 3C  
 C2 48  
 C3 00  
 C4 00  
 C5 44  
 C6 48  
 C7 00  
 C8 00  
 C9 9C  
 CA 90  
 CB 00  
 CC 00  
 CD A0  
 CE 90  
 CF 00  
 D0 00  
 D1 3C  
 D2 48  
 D3 00  
 D4 00  
 D5 44  
 D6 48  
 D7 00  
 D8 00  
 D9 B4  
 DA AC  
 DB 00  
 DC 00  
 DD B8  
 DE AC  
 DF 00  
 E0 00  
 E1 3C  
 E2 48  
 E3 00  
 E4 00  
 E5 44  
 E6 48  
 E7 00  
 E8 00  
 E9 9C  
 EA 90  
 EB 00  
 EC 00  
 ED A0  
 EE 90  
 EF 00  
 F0 00  
 F1 3C  
 F2 48  
 F3 00  
 F4 00  
 F5 44  
 F6 48  
 F7 00  
 F8 00  
 F9 B4  
 FA AC  
 FB 00  
 FC 00  
 FD B8  
 FE AC  
 FF 00

4

3

2

1

4

3

2

1

## A EXPONENT ENCODE ROM, PART 1 FOR 8TC0

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 C14 19266812

## ADDR CONTENTS

00 C  
01 C  
02 C  
03 C  
04 C  
05 C  
06 C  
07 C  
08 C  
09 C  
0A C  
0B C  
0C C  
0D C  
0E C  
0F C  
10 C  
11 C  
12 C  
13 C  
14 C  
15 C  
16 C  
17 C  
18 0  
19 0  
1A 0  
1B 0  
1C 0  
1D 0  
1E 0  
1F 0  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0  
26 0  
27 0  
28 8  
29 8  
2A 8  
2B 8  
2C 8  
2D 8  
2E 8  
2F 8  
30 8  
31 8  
32 8  
33 8  
34 8  
35 8  
36 8  
37 8  
38 4  
39 4  
3A 4  
3B 4  
3C 4  
3D 4  
3E 4  
3F 4

## ADDR CONTENTS

40 E  
41 E  
42 E  
43 E  
44 E  
45 E  
46 E  
47 E  
48 E  
49 E  
4A E  
4B E  
4C E  
4D E  
4E E  
4F E  
50 E  
51 E  
52 E  
53 E  
54 E  
55 E  
56 E  
57 E  
58 2  
59 2  
5A 2  
5B 2  
5C 2  
5D 2  
5E 2  
5F 2  
60 2  
61 2  
62 2  
63 2  
64 2  
65 2  
66 2  
67 2  
68 A  
69 A  
6A A  
6B A  
6C A  
6D A  
6E A  
6F A  
70 A  
71 A  
72 A  
73 A  
74 A  
75 A  
76 A  
77 A  
78 6  
79 6  
7A 6  
7B 6  
7C 6  
7D 6  
7E 6  
7F 6

## ADDR CONTENTS

80 C  
81 5  
82 0  
83 9  
84 B  
85 2  
86 7  
87 E  
88 C  
89 5  
8A 0  
8B 9  
8C B  
8D 2  
8E 7  
8F E  
90 C  
91 5  
92 0  
93 9  
94 B  
95 2  
96 7  
97 E  
98 C  
99 5  
9A 0  
9B 9  
9C B  
9D 2  
9E 7  
9F E  
A0 C  
A1 5  
A2 0  
A3 9  
A4 B  
A5 2  
A6 7  
A7 E  
A8 C  
A9 5  
AA 0  
AB 9  
AC B  
AD 2  
AE 7  
AF E  
B0 C  
B1 5  
B2 0  
B3 9  
B4 B  
B5 2  
B6 7  
B7 E  
B8 C  
B9 5  
BA 0  
BB 9  
BC B  
BD 2  
BE 7  
BF E

## ADDR CONTENTS

C0 C  
C1 5  
C2 0  
C3 9  
C4 B  
C5 2  
C6 7  
C7 E  
C8 C  
C9 5  
CA 0  
CB 9  
CC B  
CD 2  
CE 7  
CF E  
D0 C  
D1 5  
D2 0  
D3 9  
D4 B  
D5 2  
D6 7  
D7 E  
D8 C  
D9 5  
DA 0  
DB 9  
DC B  
DD 2  
DE 7  
DF E  
E0 C  
E1 5  
E2 0  
E3 9  
E4 B  
E5 2  
E6 7  
E7 E  
E8 C  
E9 5  
EA 0  
EB 9  
EC B  
ED 2  
EE 7  
EF E  
F0 C  
F1 5  
F2 0  
F3 9  
F4 B  
F5 2  
F6 7  
F7 E  
F8 C  
F9 5  
FA 0  
FB 9  
FC B  
FD 2  
FE 7  
FF E

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
  
CONTROL  
DATA

A EXPONENT ENCODE ROM,  
PART 1 FOR 8TC0  
MODULE ASSY - 210 PAK  
TYPE 8TC0

CODE IDENT.  
34570

DWG. NO.  
C

REV  
B

SHEET  
20

4

3

2

1

## A AND B EXPONENT ENCODE ROM, PART 2 FOR 8TCO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 C06 19266814

ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS
00 C	40 0	80 0	C0 0
01 0	41 0	81 0	C1 0
02 0	42 0	82 0	C2 0
03 0	43 0	83 0	C3 0
04 0	44 0	84 0	C4 0
05 0	45 0	85 0	C5 0
06 0	46 0	86 0	C6 0
07 0	47 0	87 0	C7 0
08 0	48 0	88 0	C8 0
09 0	49 0	89 0	C9 0
0A 0	4A 0	8A 0	CA 0
0B 0	4B 0	8B 0	CB 0
0C 0	4C 0	8C 0	CC 0
0D 0	4D 0	8D 0	CD 0
0E 0	4E 0	8E 0	CE 0
0F 0	4F 0	8F 0	CF 0
10 0	50 0	90 0	D0 0
11 0	51 0	91 0	D1 0
12 0	52 0	92 0	D2 0
13 0	53 0	93 0	D3 0
14 0	54 0	94 0	D4 0
15 0	55 0	95 0	D5 0
16 0	56 0	96 0	D6 0
17 0	57 0	97 0	D7 0
18 0	58 0	98 0	D8 0
19 0	59 0	99 0	D9 0
1A 0	5A 0	9A 0	DA 0
1B 0	5B 0	9B 0	DB 0
1C 0	5C 0	9C 0	DC 0
1D 0	5D 0	9D 0	DD 0
1E 0	5E 0	9E 0	DE 0
1F 0	5F 0	9F 0	DF 0
20 0	60 0	A0 0	E0 0
21 0	61 0	A1 0	E1 0
22 0	62 0	A2 0	E2 0
23 0	63 0	A3 0	E3 0
24 0	64 0	A4 0	E4 0
25 0	65 0	A5 0	E5 0
26 0	66 0	A6 0	E6 0
27 0	67 0	A7 0	E7 0
28 0	68 0	A8 0	E8 0
29 0	69 0	A9 0	E9 0
2A 0	6A 0	AA 0	EA 0
2B 0	6B 0	AB 0	EB 0
2C 0	6C 0	AC 0	EC 0
2D 0	6D 0	AD 0	ED 0
2E 0	6E 0	AE 0	EE 0
2F 0	6F 0	AF 0	EF 0
30 0	70 0	B0 0	FO 0
31 0	71 0	B1 0	F1 0
32 0	72 0	B2 0	F2 0
33 0	73 0	B3 0	F3 0
34 0	74 0	B4 0	F4 0
35 0	75 0	B5 0	F5 0
36 0	76 0	B6 0	F6 0
37 0	77 0	B7 0	F7 0
38 0	78 0	B8 0	F8 0
39 0	79 0	B9 0	F9 0
3A 0	7A 0	BA 0	FA 0
3B 0	7B 0	BB 0	FB 0
3C 0	7C 0	BC 0	FC 0
3D 0	7D 0	BD 0	FD 0
3E 0	7E 0	BE 0	FE 0
3F 0	7F 0	BF 0	FF C

## B EXPONENT ENCODE ROM, PART 1 FOR 8TCO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149  
 \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:  
 - MOST SIGNIFICANT BIT AT TOP OF SYMBOL  
 - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL  
 \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 A14 19266813

ADDR	CONTENTS	ADDR	CONTENTS	ADDR	CONTENTS	ADDR	CONTENTS
00	6	40	4	80	E	C0	E
01	6	41	4	81	7	C1	7
02	6	42	4	82	2	C2	2
03	6	43	4	83	8	C3	8
04	6	44	4	84	9	C4	9
05	6	45	4	85	0	C5	0
06	6	46	4	86	5	C6	5
07	6	47	4	87	C	C7	C
08	A	48	8	88	E	C8	E
09	A	49	8	89	7	C9	7
0A	A	4A	8	8A	2	CA	2
0B	A	4B	8	8B	8	CB	8
0C	A	4C	8	8C	9	CC	9
0D	A	4D	8	8D	0	CD	0
0E	A	4E	8	8E	5	CE	5
0F	A	4F	8	8F	C	CF	C
10	A	50	8	90	E	DO	E
11	A	51	8	91	7	D1	7
12	A	52	8	92	2	D2	2
13	A	53	8	93	8	D3	8
14	A	54	8	94	9	D4	9
15	A	55	8	95	0	D5	0
16	A	56	8	96	5	D6	5
17	A	57	8	97	C	D7	C
18	2	58	0	98	E	D8	E
19	2	59	0	99	7	D9	7
1A	2	5A	0	9A	2	DA	2
1B	2	5B	0	9B	8	DB	8
1C	2	5C	0	9C	9	DC	9
1D	2	5D	0	9D	0	DD	0
1E	2	5E	0	9E	5	DE	5
1F	2	5F	0	9F	C	DF	C
20	2	60	0	A0	E	EO	E
21	2	61	0	A1	7	E1	7
22	2	62	0	A2	2	E2	2
23	2	63	0	A3	8	E3	8
24	2	64	0	A4	9	E4	9
25	2	65	0	A5	0	E5	0
26	2	66	0	A6	5	E6	5
27	2	67	0	A7	C	E7	C
28	E	68	C	A8	E	E8	E
29	E	69	C	A9	7	E9	7
2A	E	6A	C	AA	2	EA	2
2B	E	6B	C	AB	8	EB	8
2C	E	6C	C	AC	9	EC	9
2D	E	6D	C	AD	0	ED	0
2E	E	6E	C	AE	5	EE	5
2F	E	6F	C	AF	C	EF	C
30	E	70	C	BO	E	FO	E
31	E	71	C	B1	7	F1	7
32	E	72	C	B2	2	F2	2
33	E	73	C	B3	8	F3	8
34	E	74	C	B4	9	F4	9
35	E	75	C	B5	0	F5	0
36	E	76	C	B6	5	F6	5
37	E	77	C	B7	C	F7	C
38	E	78	C	B8	E	F8	E
39	E	79	C	B9	7	F9	7
3A	E	7A	C	BA	2	FA	2
3B	E	7B	C	BB	8	FB	8
3C	E	7C	C	BC	9	FC	9
3D	E	7D	C	BD	0	FD	0
3E	E	7E	C	BE	5	FE	5
3F	E	7F	C	BF	C	FF	C

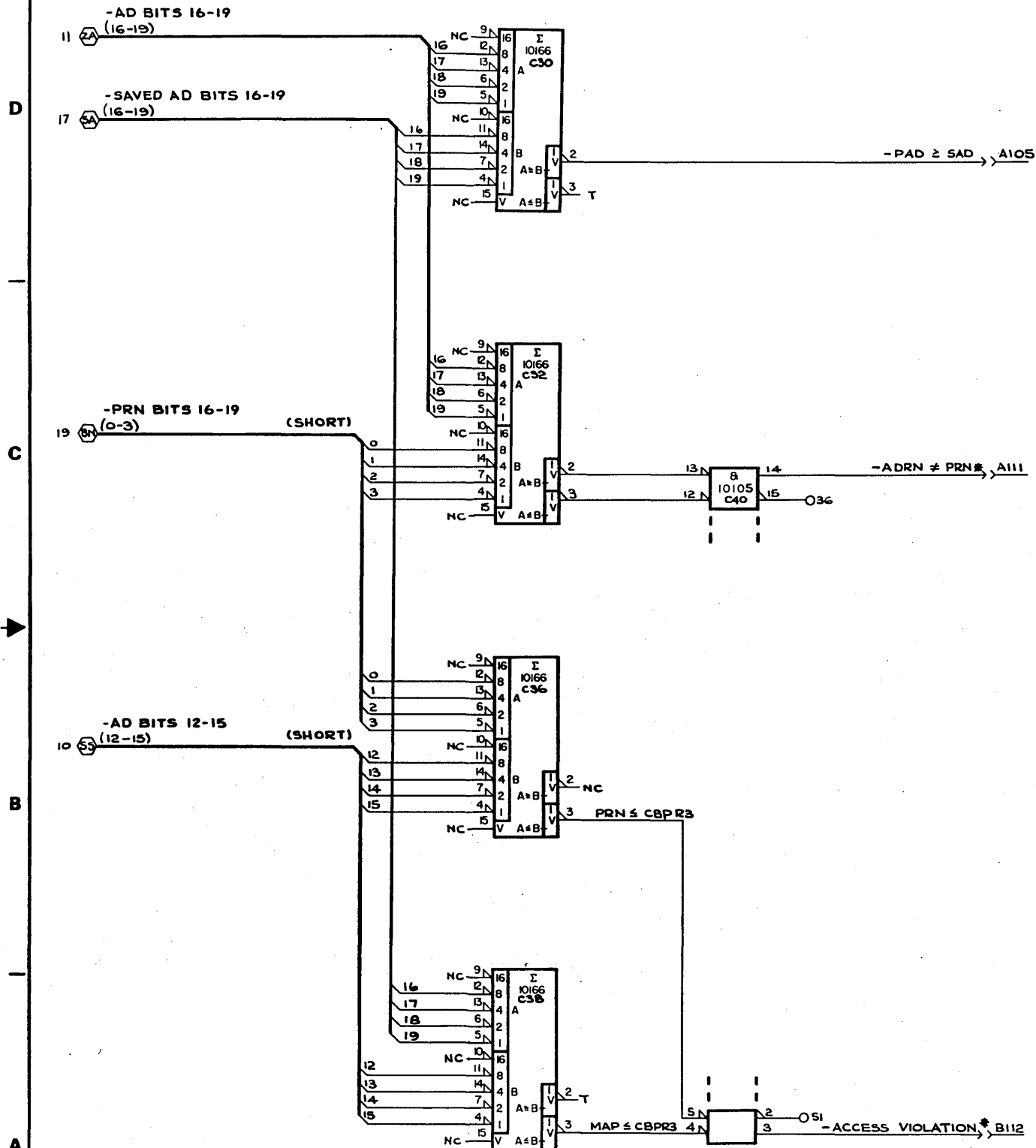


4

3

2

1



NOTE: \* SHORT & DO NOT TERMINATE.  
 PLACE CHIP IN COLUMNS A OR B.  
 (1) TERMINATE ALL UNUSED OUTPUTS  
 OF CHIPS.

PRN > R3  
 OR  
 AJ > R3

CONTROL DATA CANADA, LTD.  
 CANADIAN DEVELOPMENT DIVISION  
 CONTROL DATA

**ACCESS VIOLATION DETECTOR**  
 MODULE ASSEMBLY-210PAK  
 TYPE 8TDO.

CODE IDENT.  
**34570**

**C**

DWG. NO.  
 SHEET 02

REV  
**A**

4

3

2

1

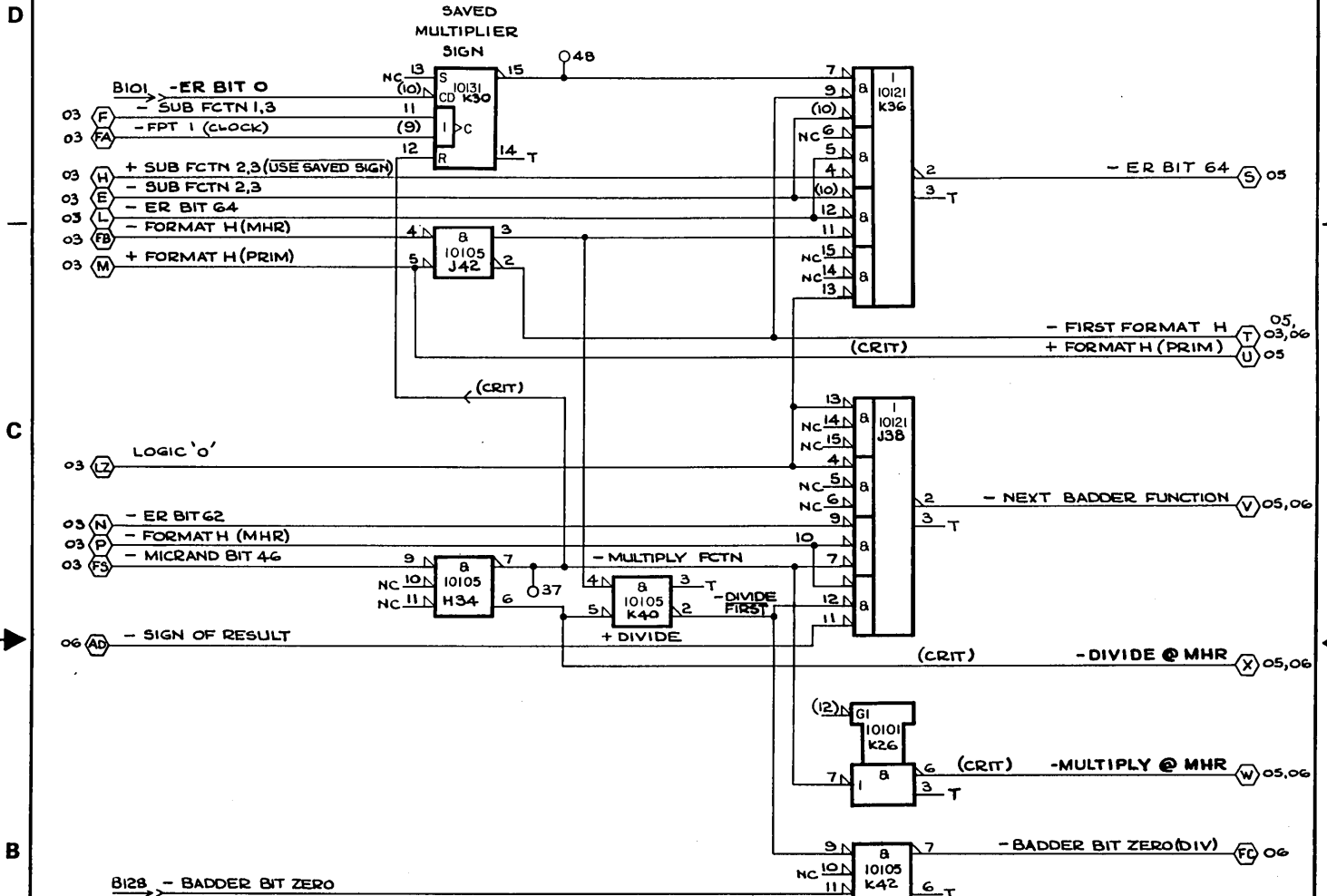


4

3

2

1



FCN	DIV	MPY
0	-	+
1	+	-

NOTE: FOR A DIVIDE; THE NEXT BADDER FUNCTION IS AN 0 (MINUS) ON THE FIRST AND A 1 (PLUS), IF THE SIGN OF THE RESULT IS A 1 THEREAFTER.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

**MULT FCTN & SIGN**  
MODULE ASSEMBLY - 210 PAK  
TYPE 8TDO

CODE IDENT.  
**34570**

DWG. NO.  
**C**

SHEET **04**

REV  
**A**

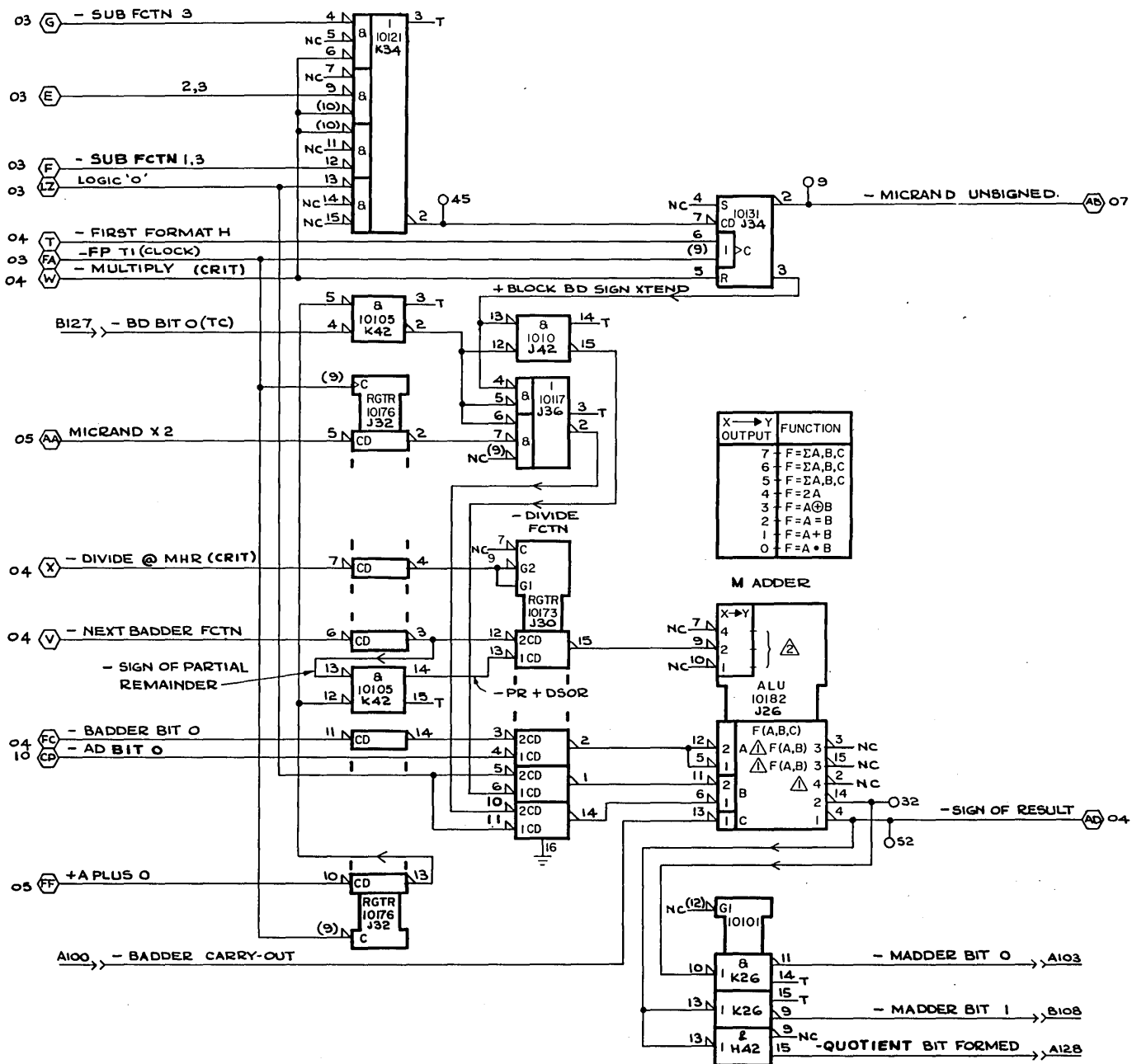
4

3

2

1





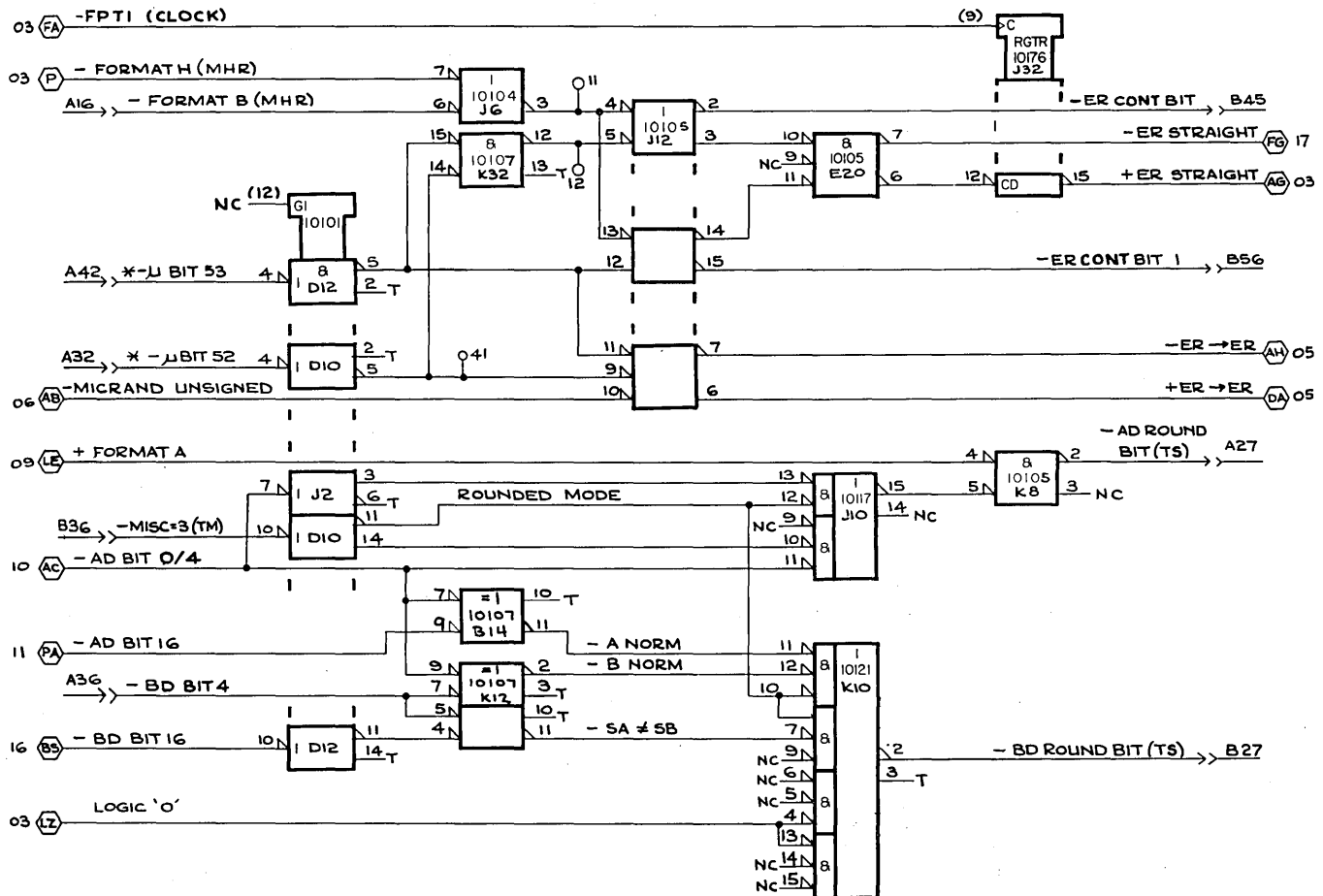
NOTE:  
FOR MULTIPLY;  
CHANGE AD BIT ZERO TRACK TO  
2 ADDER MOST SIGN BIT BUFFERED

4

3

2

1



NOTE: \* MUST BE SHORT & DO NOT TERMINATE

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

# AD, BD ROUND BITS

MODULE ASSEMBLY - 210 PAK  
TYPE BTDO

CODE IDENT.

34570

DWG NO

C

REV

A

SHEET 07

4

3

2

1

4

3

2

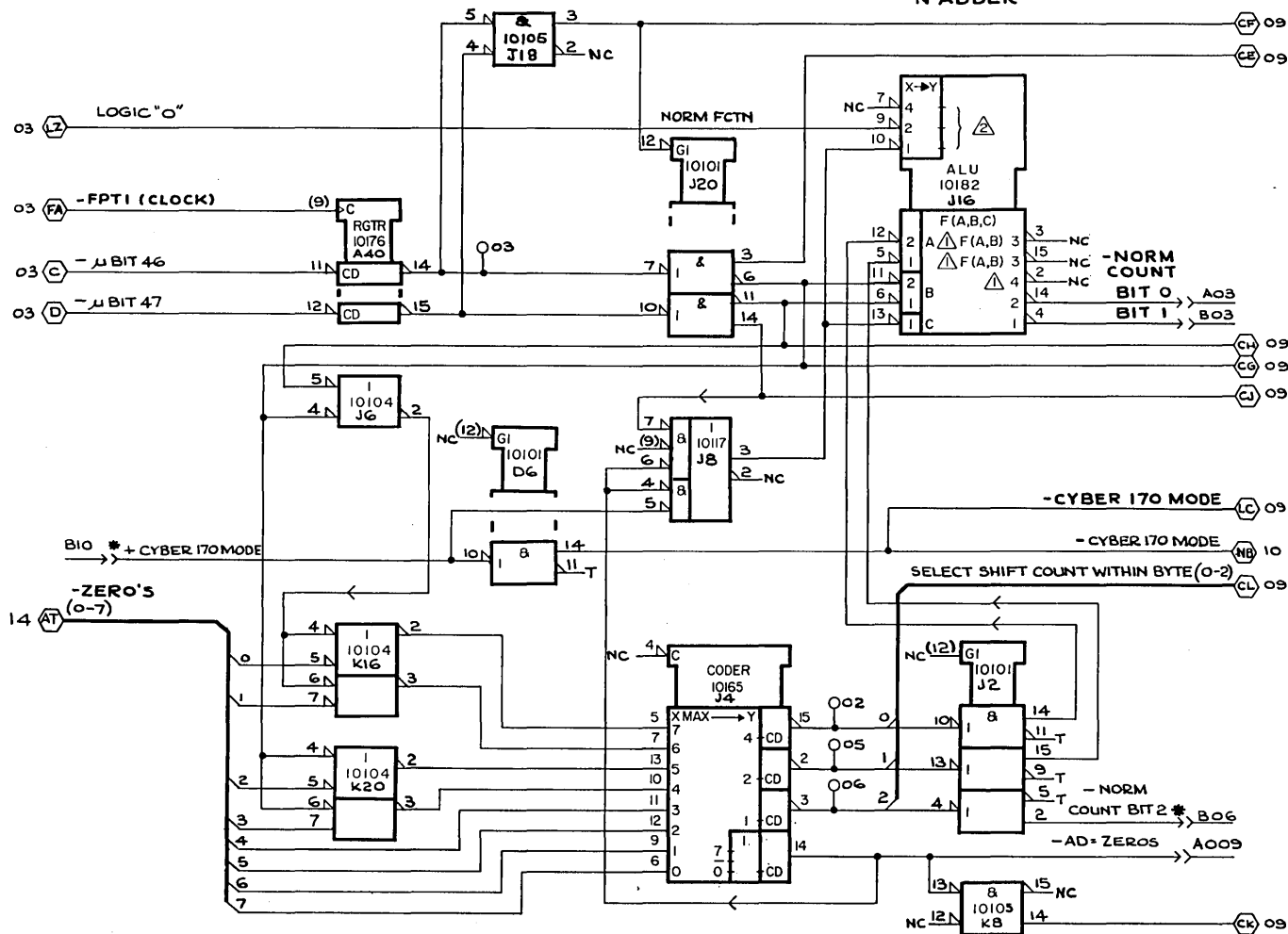
1

D

D

## NORMALIZATION COUNT

## N ADDER



NOTE: \* SHORT AND DO NOT TERMINATE

△ OUTPUT MODIFIER VALID ONLY FOR ARITHMETIC SUMMING FUNCTIONS.

△ FUNCTION TABLE

X → Y	FUNCTION
7	F = ΣA, B, C
6	F = ΣA, B, C
5	F = ΣA, B, C
4	F = 2A
3	F = A ⊕ B
2	F = A = B
1	F = A + B
0	F = A * B

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

## N ADDER, NORM COUNT

MODULE ASSEMBLY - 210PAK  
TYPE 8TDO.

CODE IDENT.

34570

C

DWS NO

SHEET 08

REV

A

4

3

2

1

A

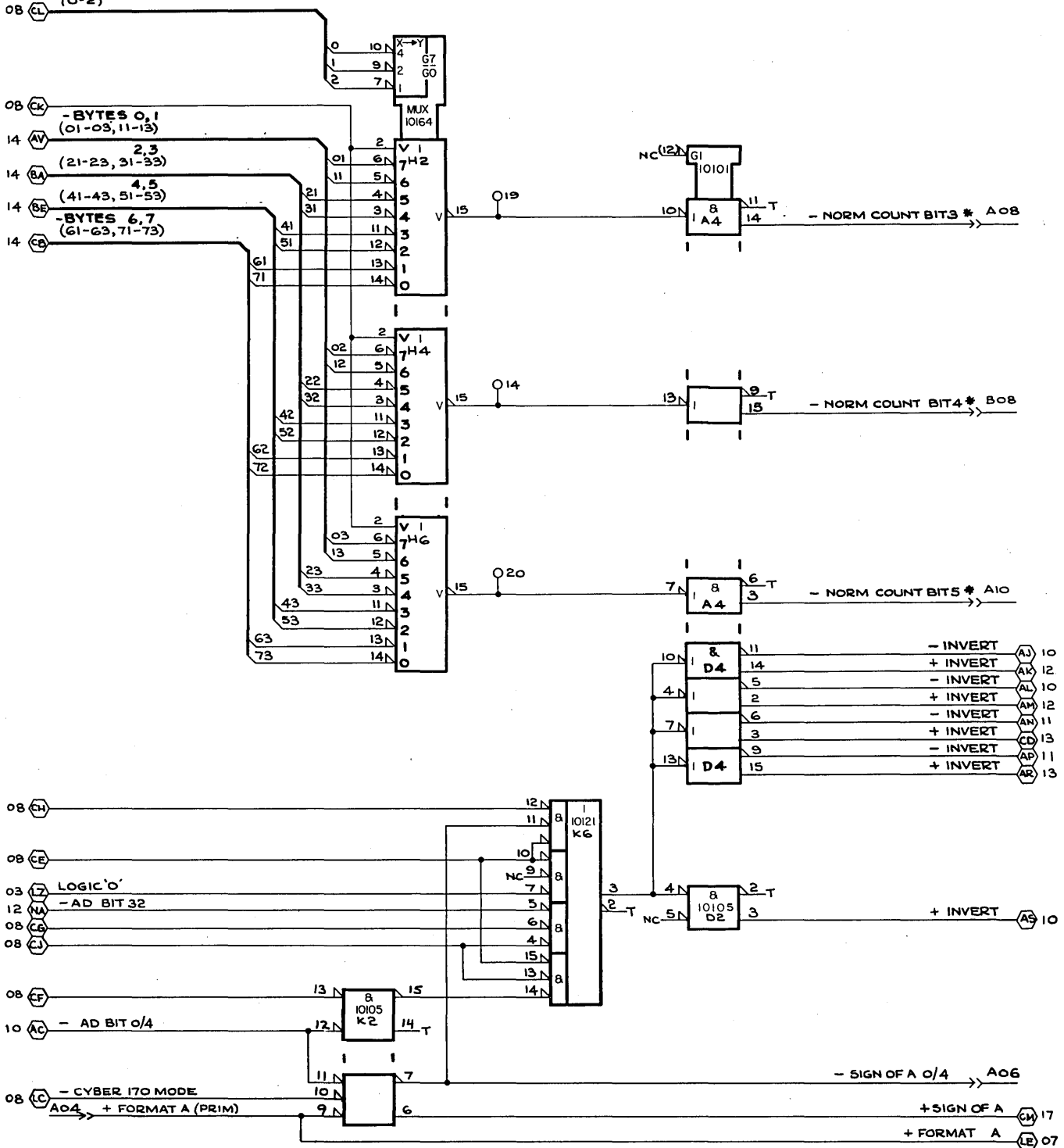
4

3

2

1

# SELECT COUNT WITHIN BYTE (0-2)



NOTE : \* SHORT AND DO NOT TERMINATE

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

## NORM COUNT MUX

MODULE ASSEMBLY - 210PAK  
TYPE 8TDO

CODE IDENT.

34570

DWG NO

C

REV

A

SHEET 09

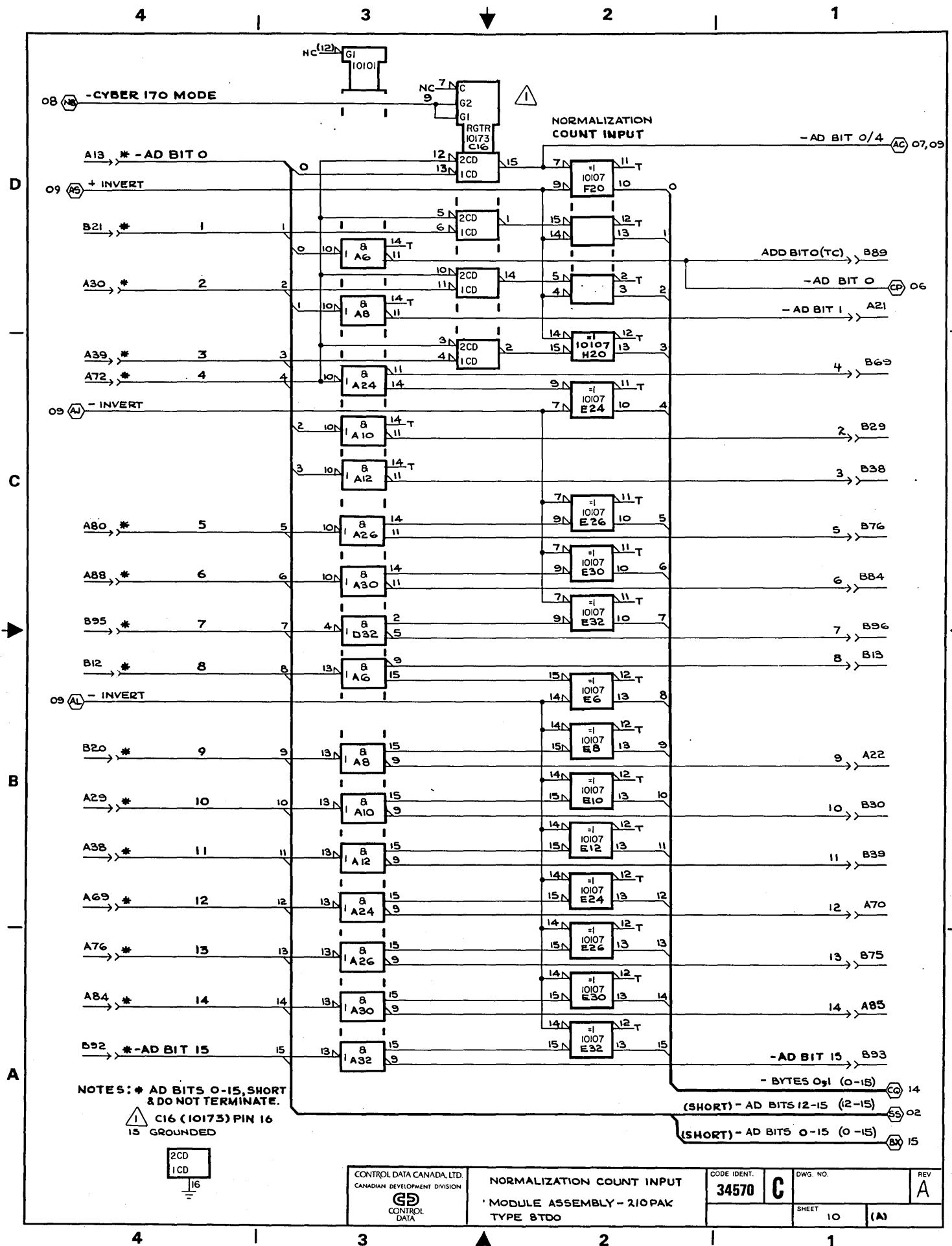
4

3

2

1





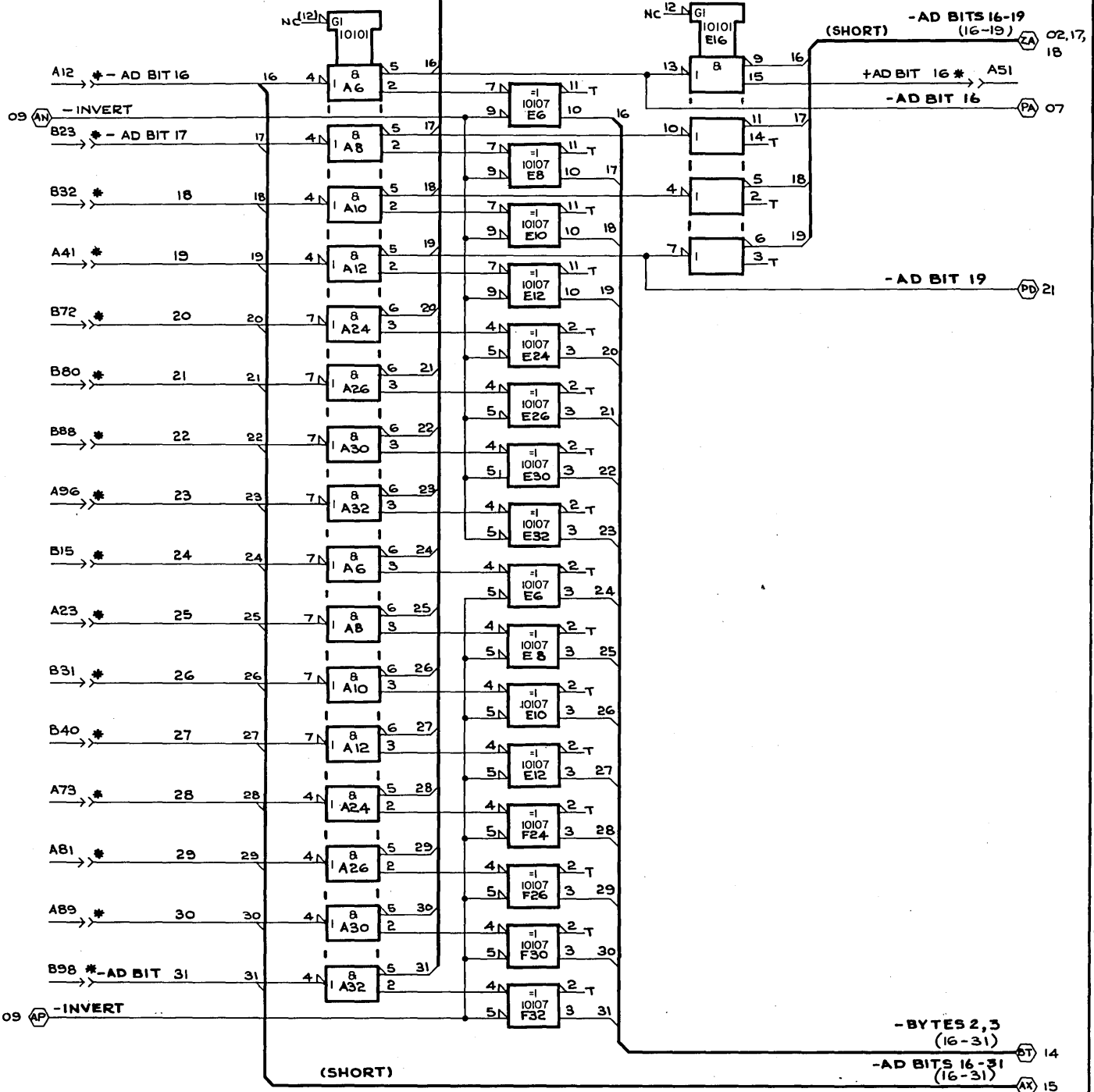
4

3

2

1

NORMALIZATION COUNT INPUT

-AD RGTR BITS 16-18 (RING)  
(16-18)-AD RGTR BITS 16-19 (RING)  
(16-19)-AD RGTR BITS 16-31 (RING)  
(16-31)

NOTE: \* AD BITS 20-31; SHORT  
AND DO NOT TERMINATE.

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

NORMALIZATION COUNT INPUT  
MODULE ASSEMBLY - 210 PAK  
TYPE BTDO

CODE IDENT.  
34570

DWG. NO  
C

SHEET 11

(8)

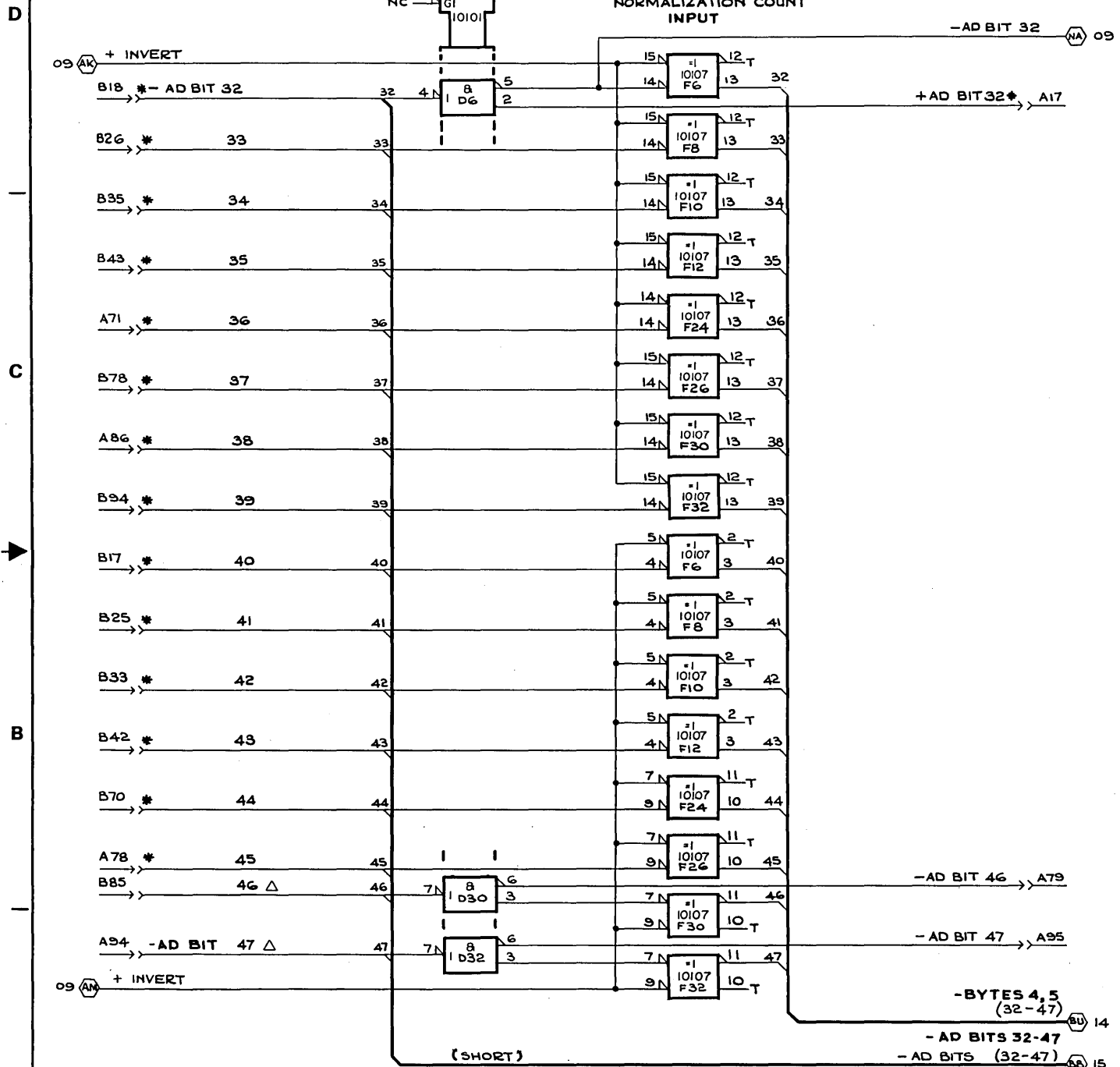
REV  
A

4

3

2

1



4

3

2

1

4

3

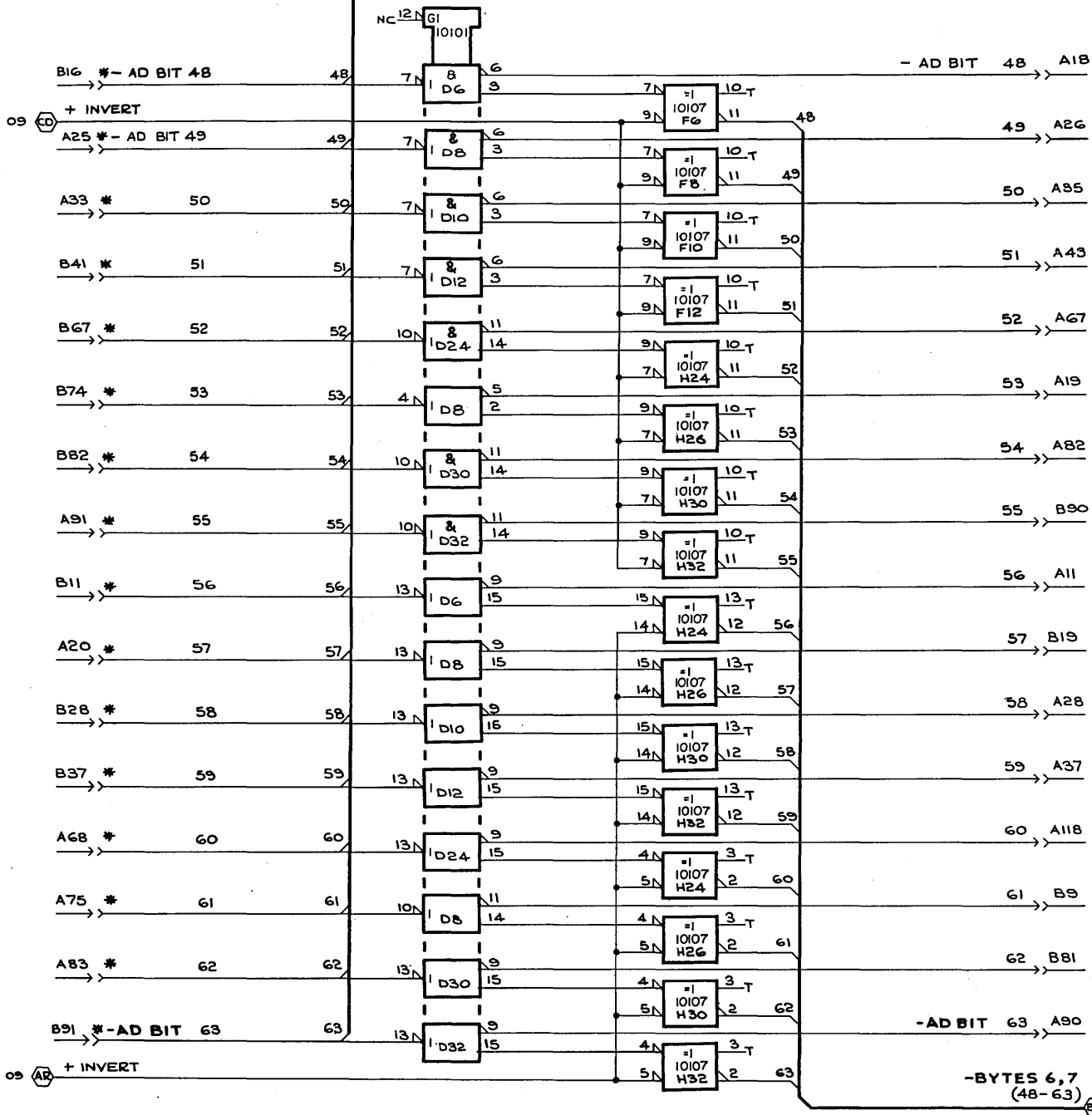
2

1

NORMALIZATION COUNT  
INPUT-AD BITS 48-63  
(48-63)

BP 15

"SHORT"

-BYTES 6,7  
(48-63)

BY 14

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL DATA

NORMALIZATION COUNT INPUT  
MODULE ASSEMBLY - 210PAK  
TYPE 8TDO

CODE IDENT.  
**34570**

DWG. NO.  
**C**

REV  
**A**

SHEET  
13

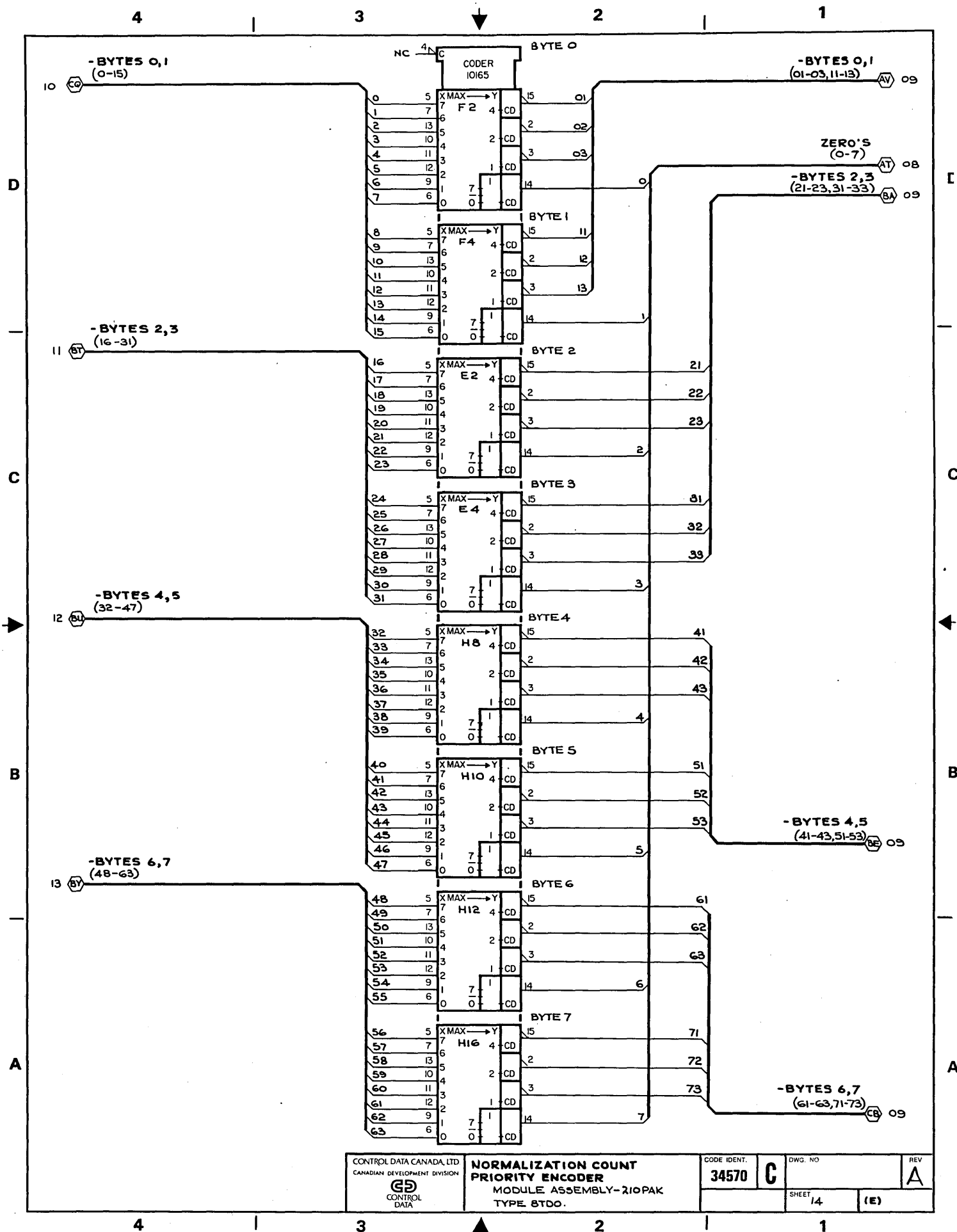
(D)

4

3

2

1



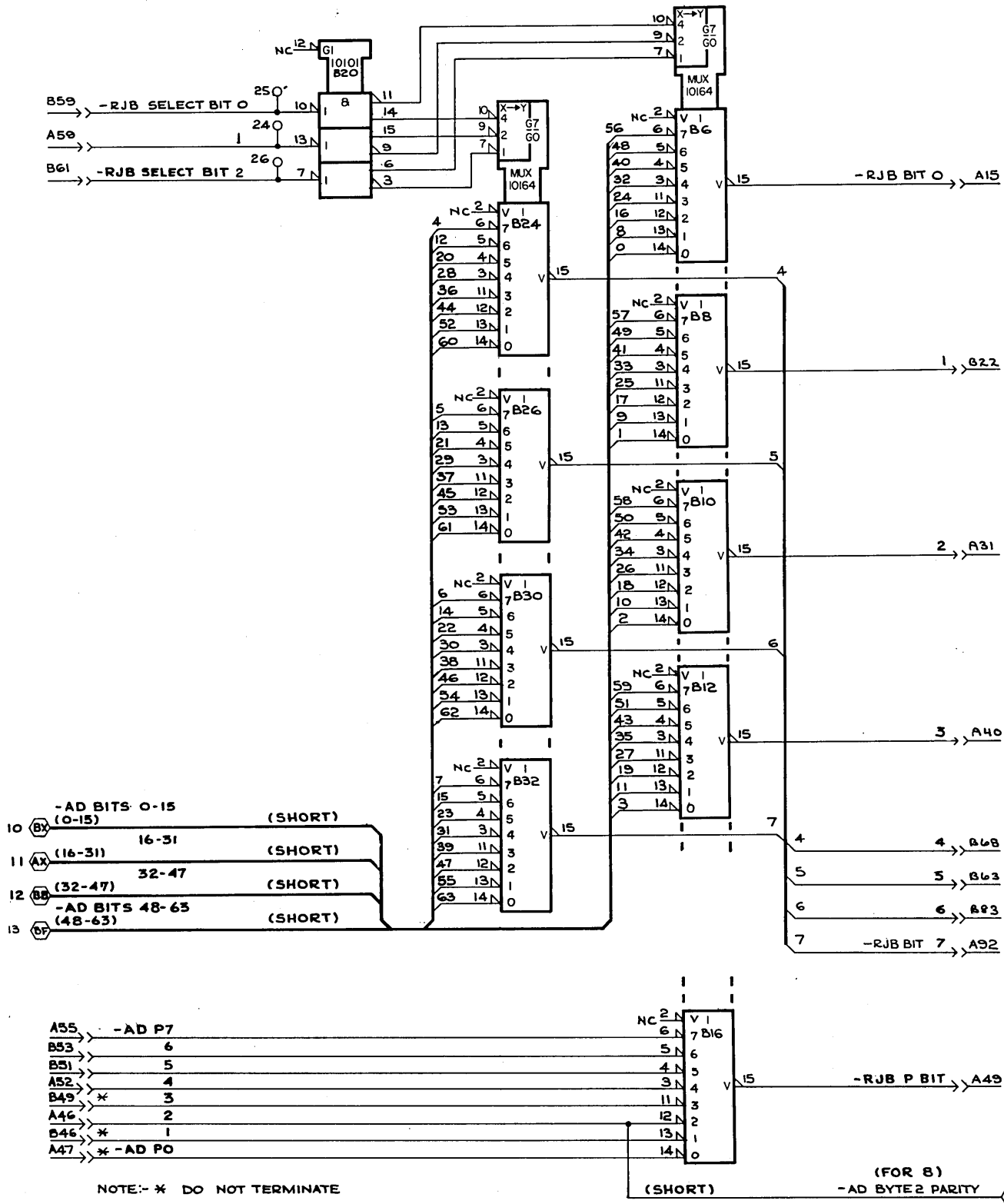
4

3

2

1

## RJB MUX



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL DATA

## RJB MUX

MODULE ASSEMBLY-210 PAK  
TYPE 6TDO.

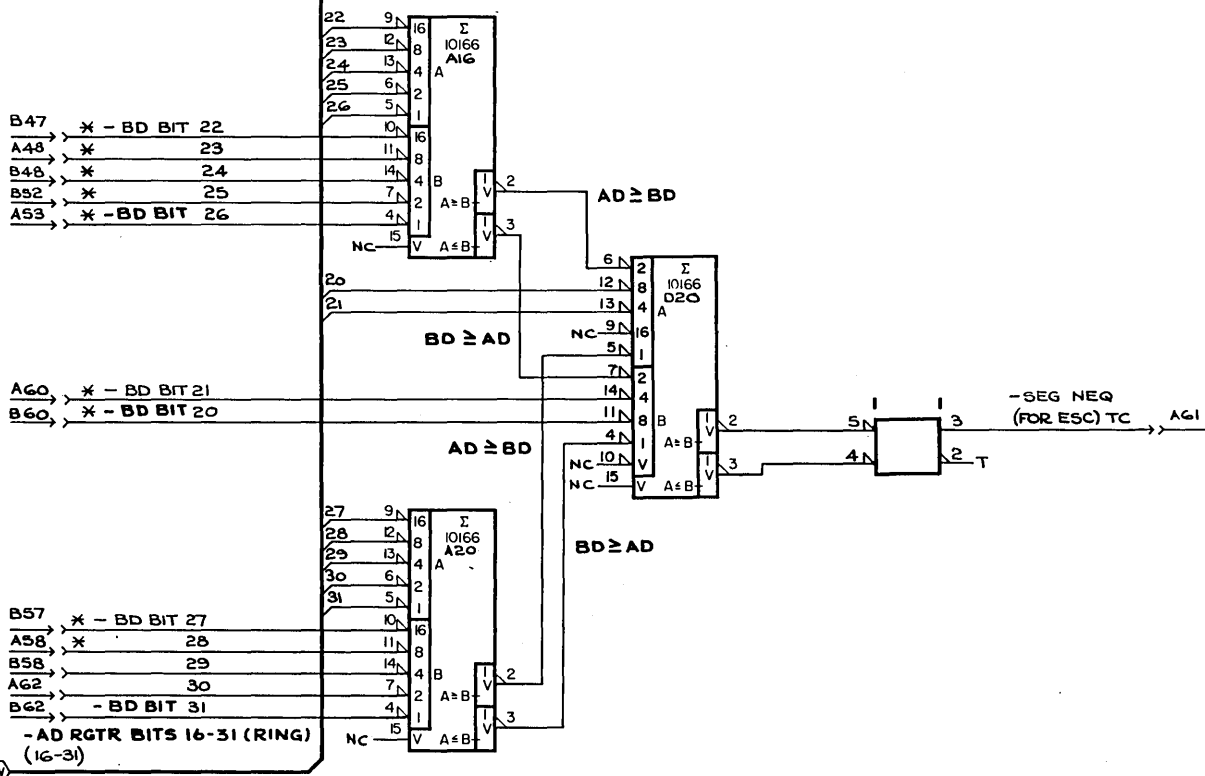
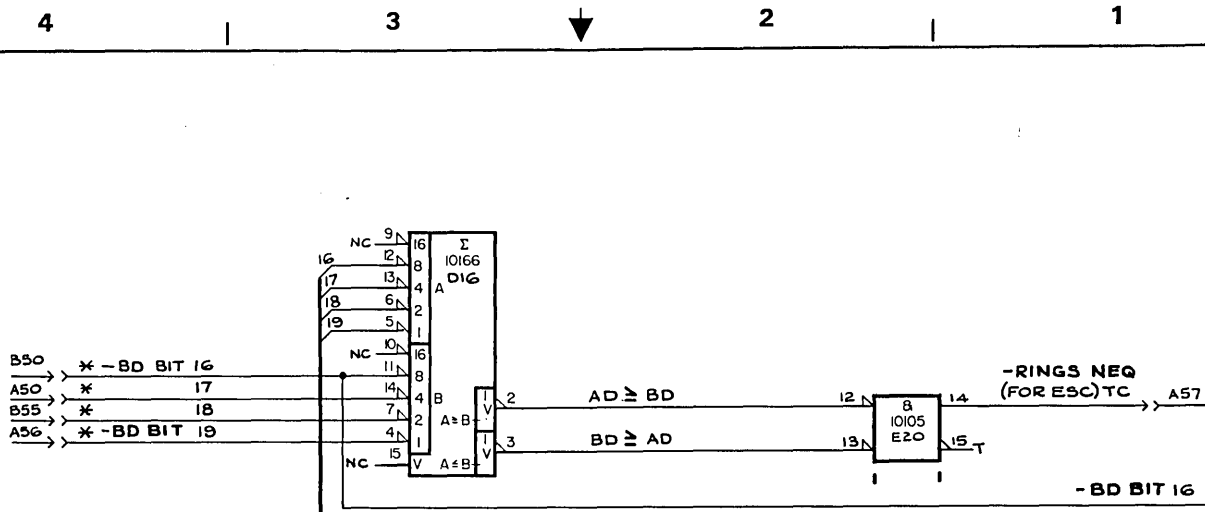
CODE IDENT.  
**34570**

DWG. NO.  
**C**

SHEET  
15

(F)

REV  
**A**



NOTE: - \* SHORT AND DO NOT TERMINATE

4

3

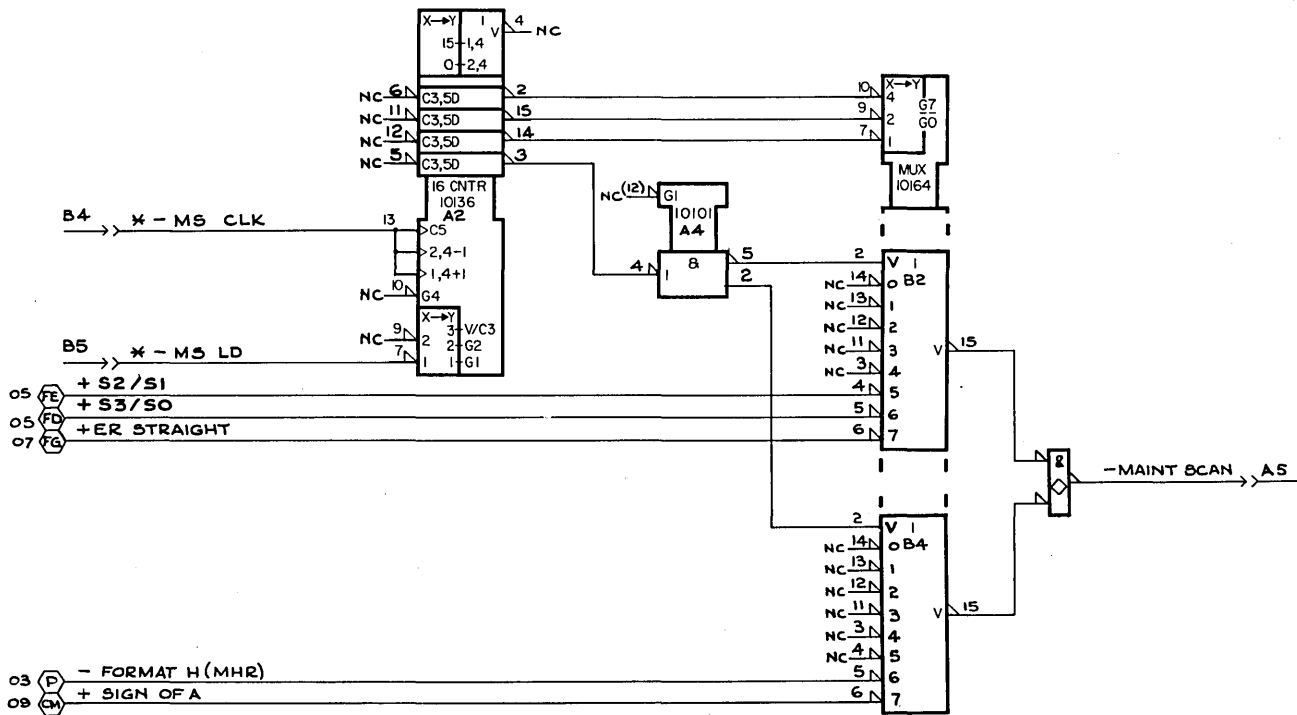
2

1

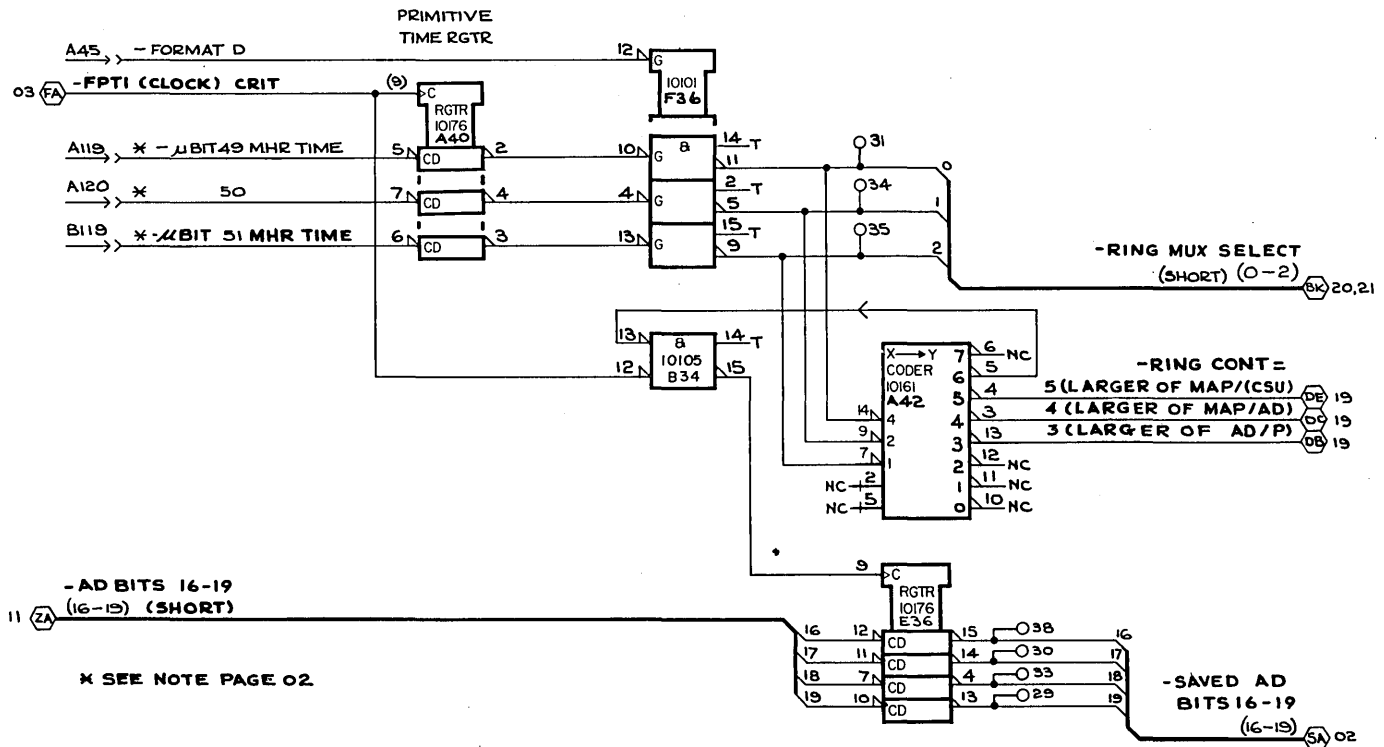
## TD MAINT SCAN CIRCUIT

## MAINT SCAN CNTR

## MAINT SCAN MUX



## RING CONTROL



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CONTROL DATA

RING CONTROL DCDR &  
TD MAINT SCAN CKT  
MODULE ASSEMBLY - 210PAK  
TYPE 8TDO.

CODE IDENT:  
34570

DWG. NO

C

SHEET 17

(H)

REV

A



4

3

2

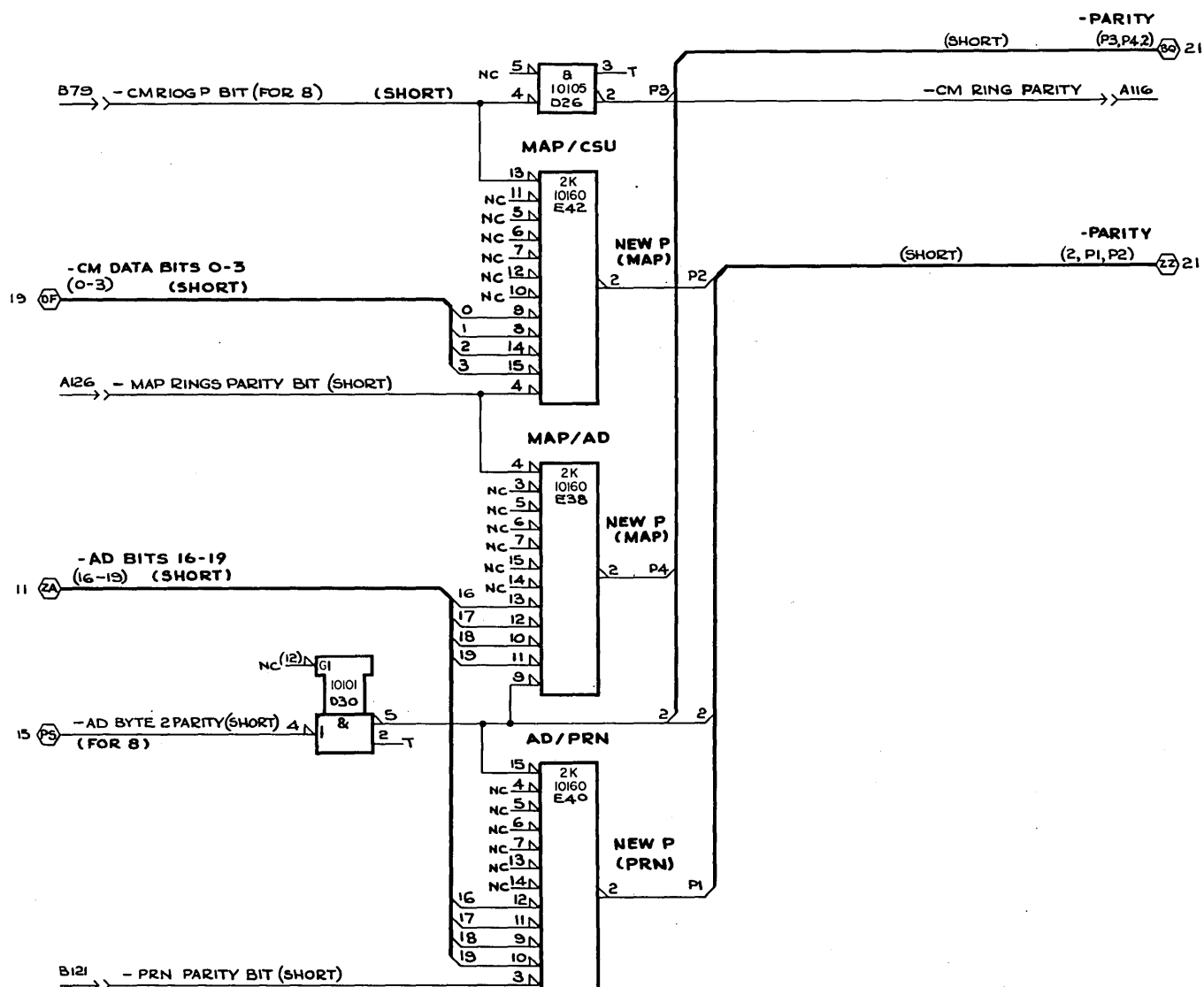
1

D

C

B

A



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**GD**  
CONTROL DATA

# RING PARITY GENERATORS

MODULE ASSEMBLY - 210 PAK  
TYPE BTDO

CODE IDENT.  
**34570**

DWG. NO.  
**C**

REV  
**A**

SHEET  
18

(J)

4

3

2

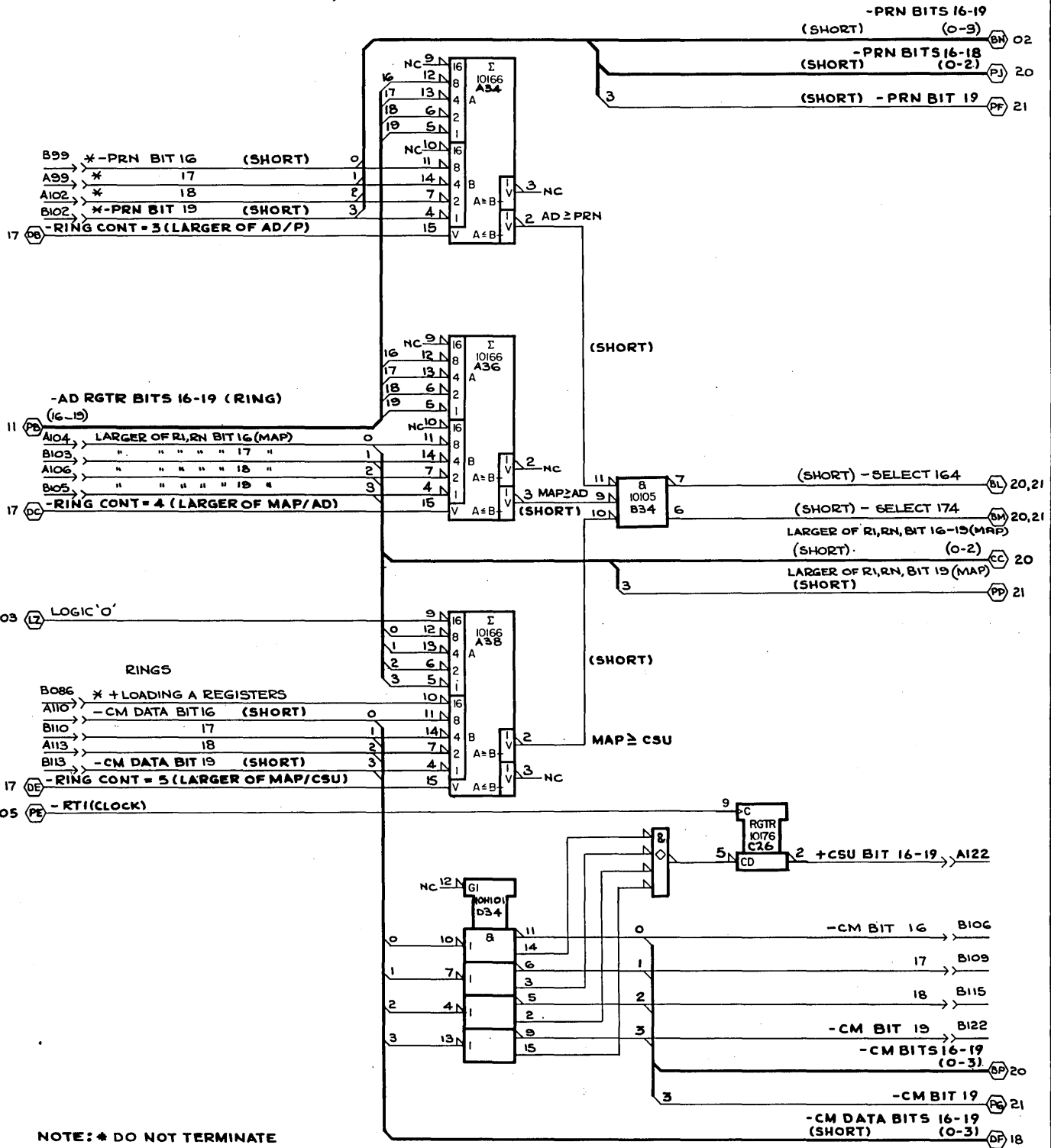
1

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

## RING VOTING COMPARATORS

MODULE ASSEMBLY - 710PAK  
TYPE 8TDO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET 19

(K)

4

3

2

1

4

3

2

1

-RING MUX SELECT  
(0-2) (SHORT)

- SELECT 164 (SHORT)

- SELECT 174 (SHORT)

LARGER OF R1,RN,BIT 16-19(MAP)  
(0-3) (SHORT)

-AD BITS  
(16-18)

-CM BITS  
(0-3)

-PRN BITS  
(0-2) (SHORT)

RING  
VOTING  
MUX

RING  
VOTING  
MUX SEL  
CODES

164 CHIPS

174 CHIPS

0	AD	0	AD
1	PRN	1	PRN
2	CM	2	USED
3	> OF AD · P	3	> AD · P
4	> OF MAP · AD		
5	> OF MAP · CM		
6	> USED		
7	> USED		

(TO DHR)

(SHORT) -SELECTED RING BIT 0

(SHORT)

(SHORT)

-SELECTED RING BIT 2

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION

RING SELECT BITS 0-2

MODULE ASSEMBLY-210 PAK  
TYPE 8TDO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

20

(L)

4

3

2

1

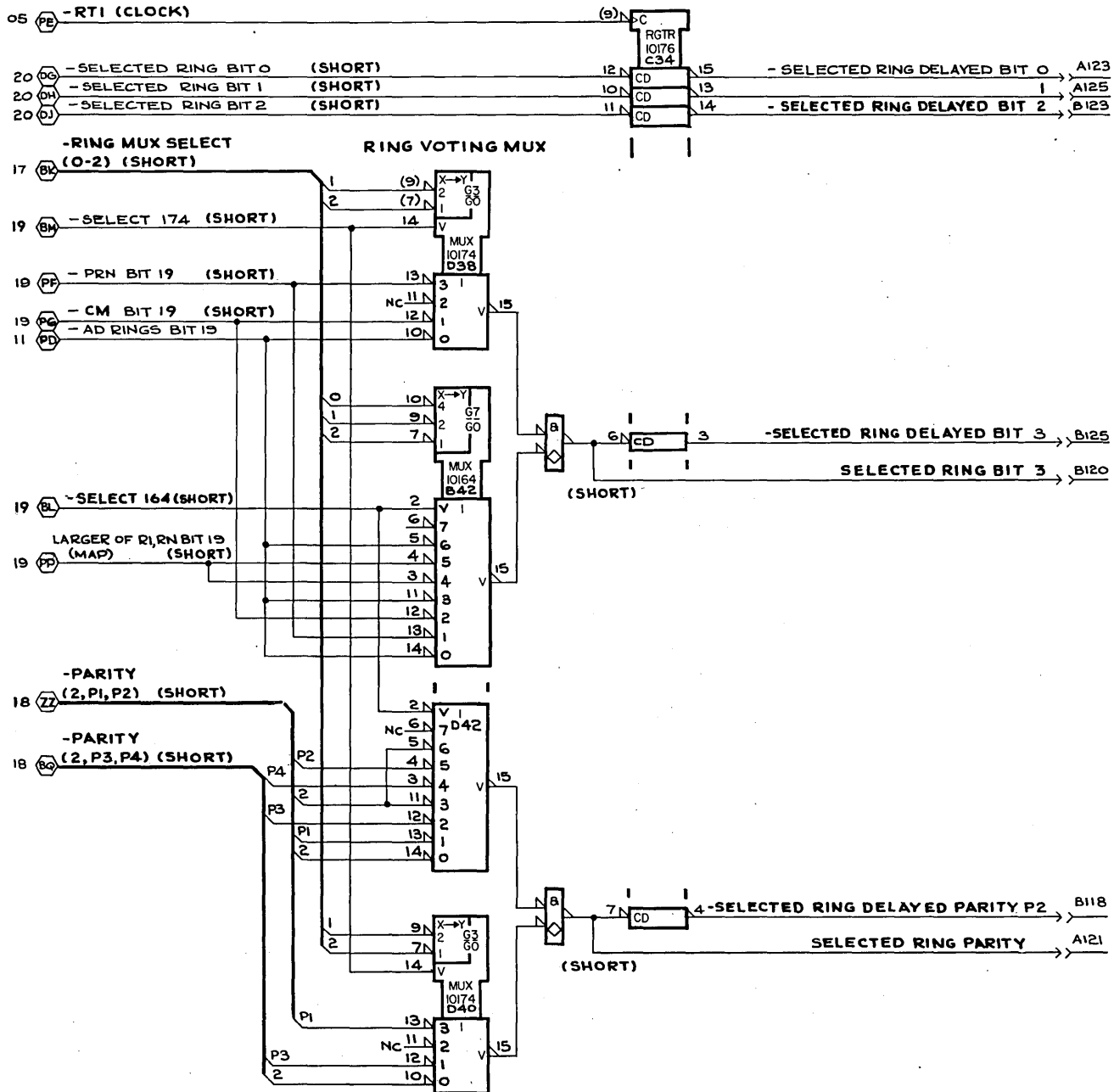
RING  
VOTING  
MUX SEL  
CODES

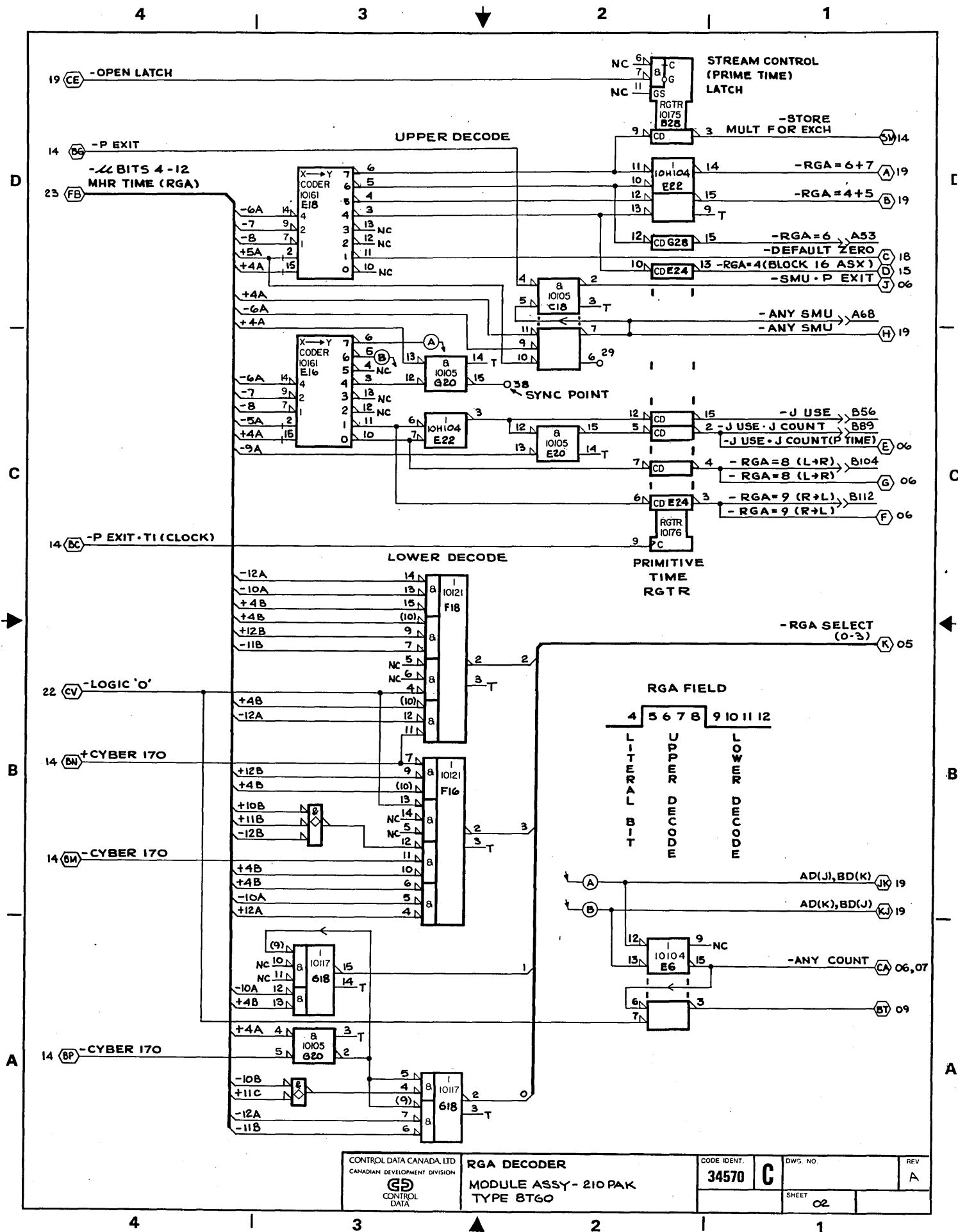
## 164 CHIPS

- 0 AD
- 1 PRN
- 2 CM
- 3 > OF AD·P
- 4 > OF MAP·AD
- 5 > OF MAP·CM
- 6 \* USED
- 7 \* USED

## 174 CHIPS

- 0 AD
- 1 PRN
- 2 \* USED
- 3 > AD·P



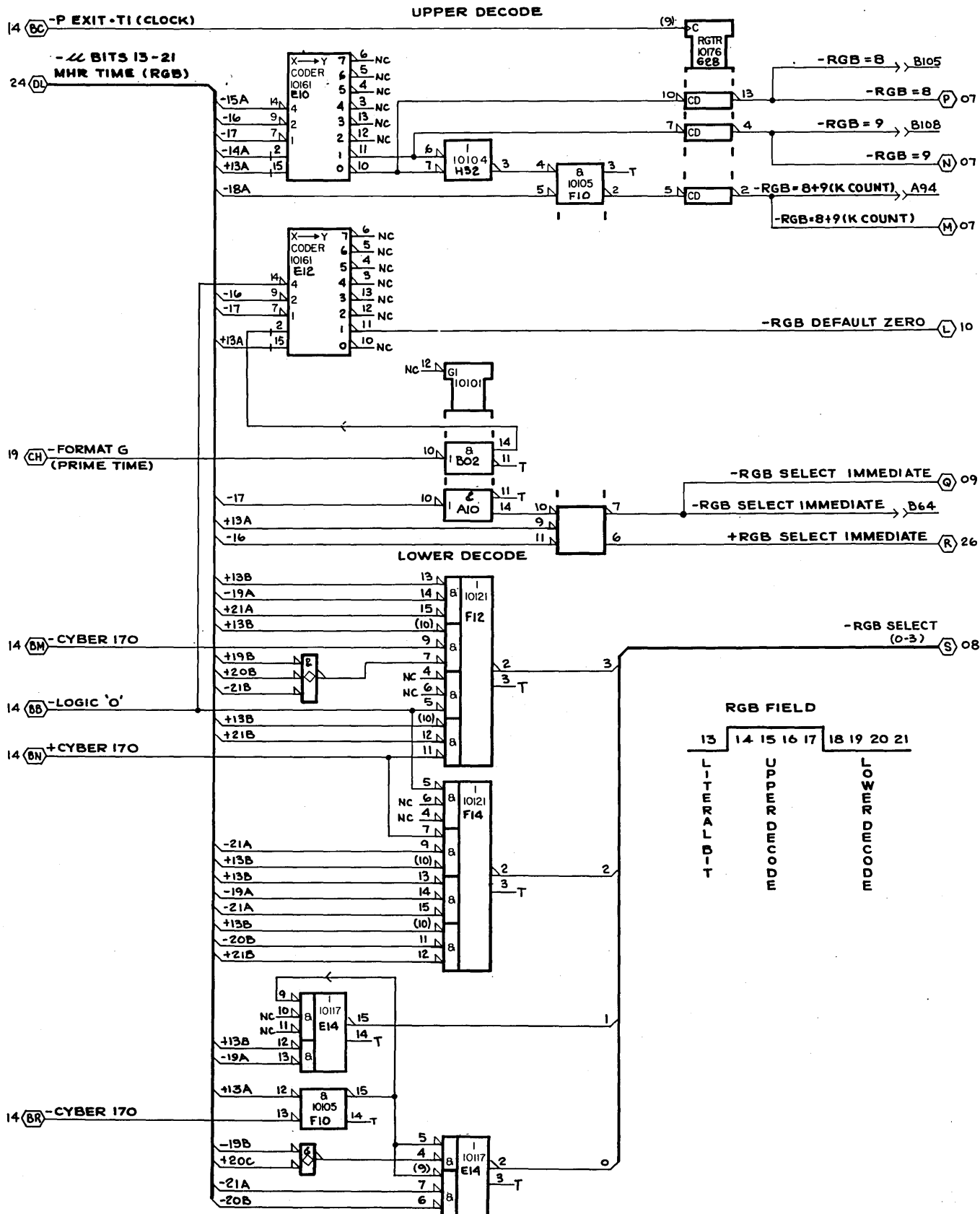


4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION

**CD**  
CONTROL  
DATA

# RGB DECODER

MODULE ASSY - 210 PAK  
TYPE 8T60

CODE IDENT.

34570

DWG. NO.

C

REV.

A

SHEET

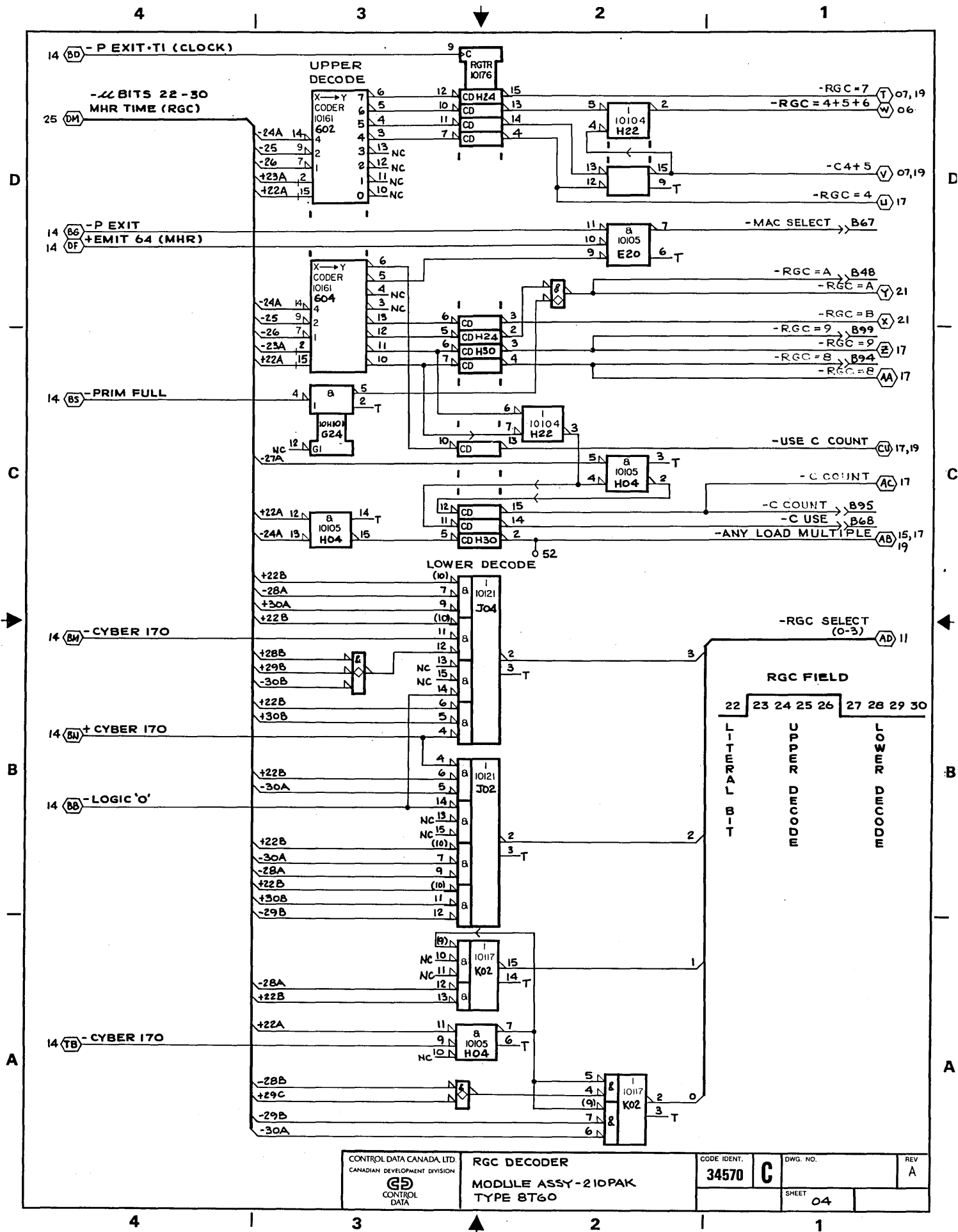
03

4

3

2

1



4

3

2

1

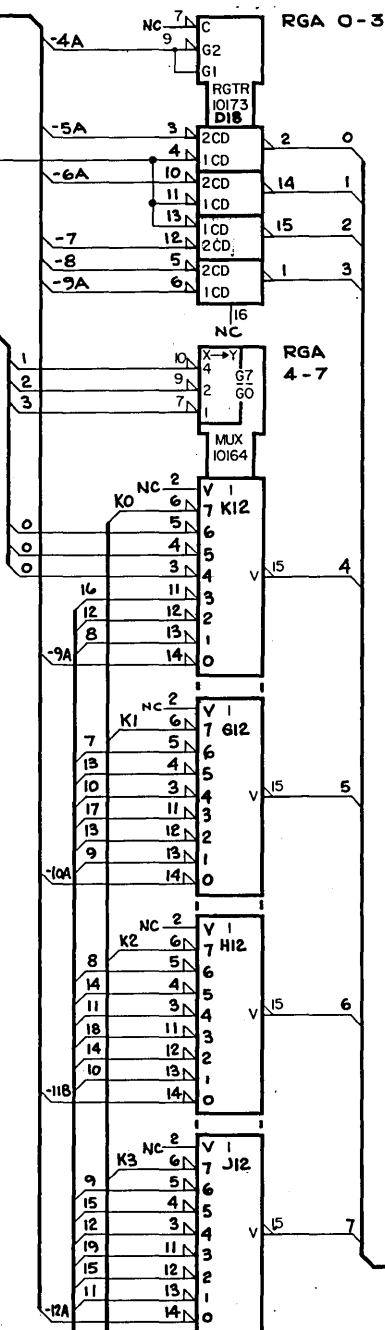
23 (FA) -//BITS 4-12 MHR TIME (RGA)

14 (BB) -LOGIC '0'

02 (K) -RGA SELECT (0-3)

20 (CM) -INSTR BITS 7-19 MHR TIME (7-19)

20 (CL) -K+1 CNTR BITS 0-3 (K0-K3)



# MUX SELECT

0 LITERAL

1 J

2 K

3 L

4 J

5 K

6 I

7 K+1

} CY

-SEL'D A (0-7) AG 09, 16, 18

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

RGA  
MODULE ASSY-210PAK  
TYPE BT60

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET  
05

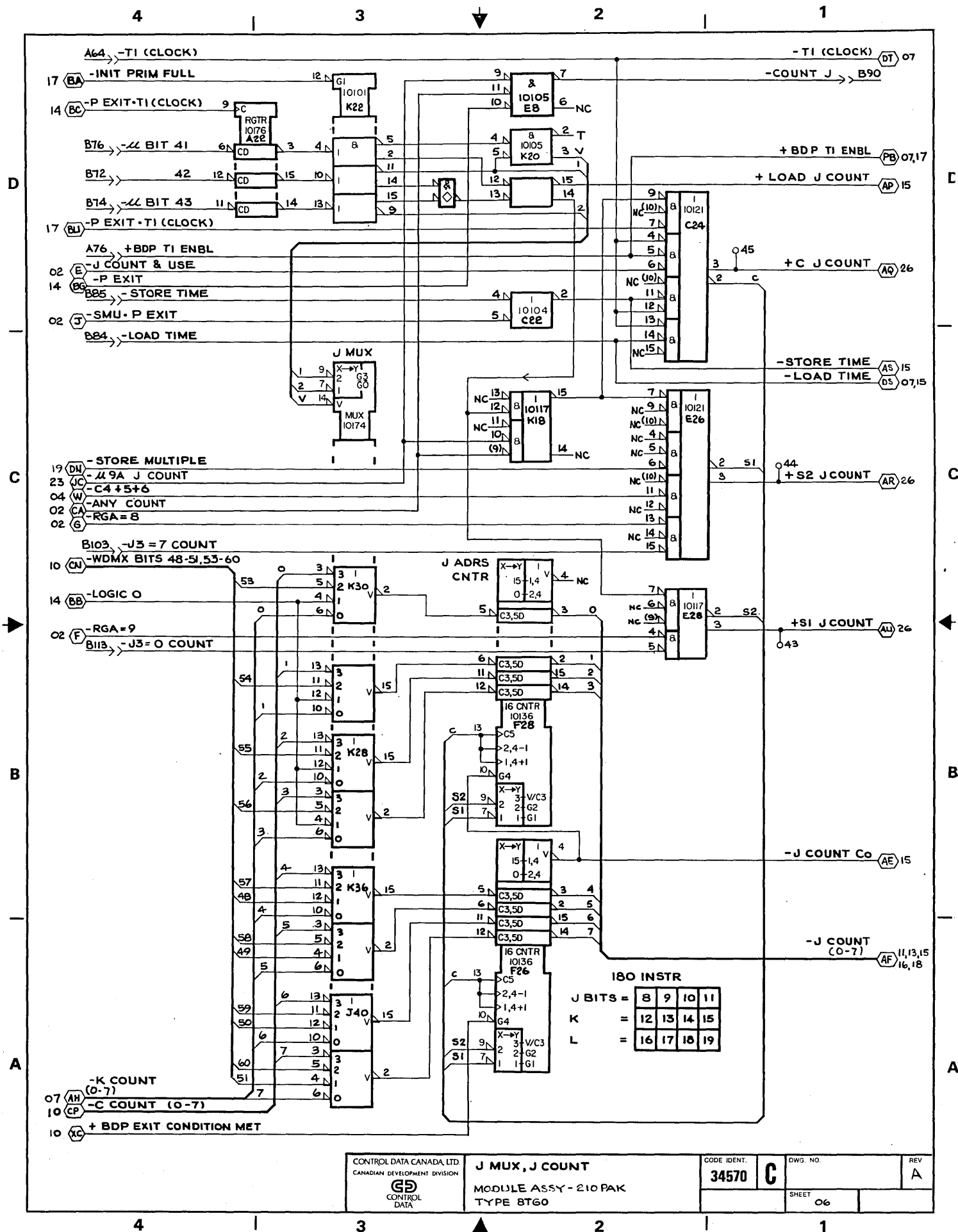
4

3

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1



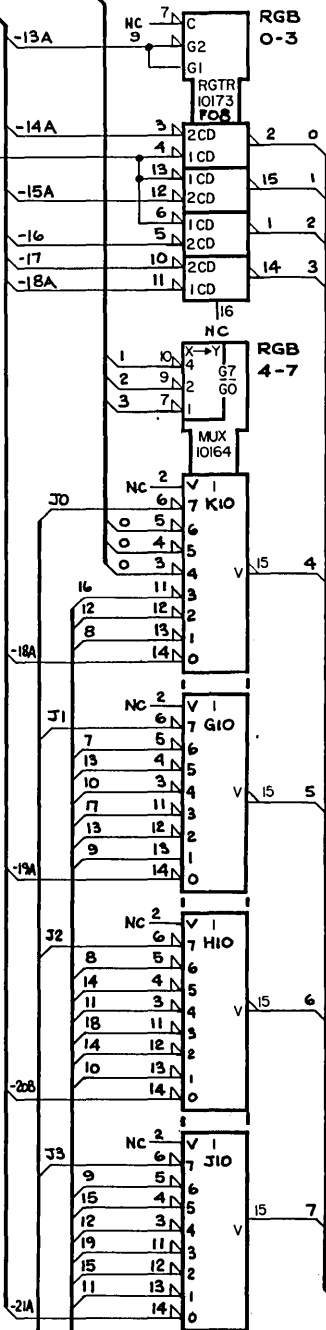




03 (S) -RGB SELECT (0-3)  
24 (FD) -22 BITS 13-21 MHR TIME (RGB)

14 (BB) -LOGIC '0'

20 (CK) -J+I CNTR BITS 0-3 (J0-J3)  
20 (CM) -INSTR BITS 7-19 MHR TIME (7-19)



-SEL'D B ADRS 0-7 (A7) 09  
-SEL'D B ADRS 4-7 (FG) 10

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

RGB MUX  
MODULE ASSY - 210 PAK  
TYPE 8T60

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET  
08

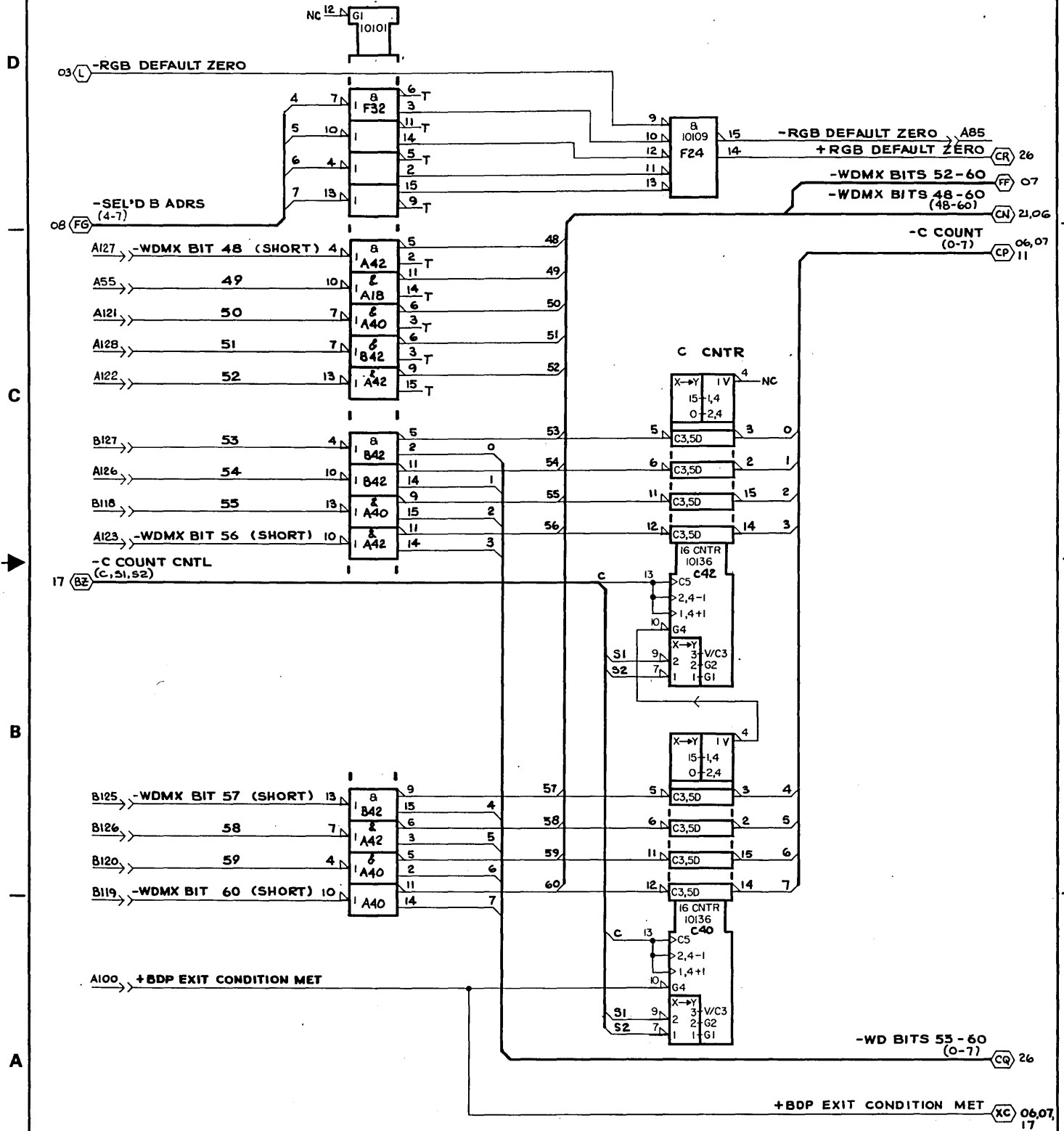


4

3

2

1



CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

C CNTR

MODULE ASSY- 210 PAK  
TYPE 8TGO

CODE IDENT.

34570

DWG NO.

C

REV

A

SHEET

10

(A)

4

3

2

1

WRITE  
RGTR  
(PRIMITIVE)

WRITE MUX

0 - WRITE ADRS  
1 - J COUNT  
2 - K COUNT  
3 - C COUNT

19 CD -WRITE MUX SELECT (+0,+1)

10 CP -C COUNT (0-7)

07 AH -K COUNT (0-7)

06 AF -J COUNT (0-7)

14 BC -P EXIT-TI (CLOCK)

25 GF -ZBITS 22-30 MHR TIME (RGC)

14 BB -LOGIC '0'

04 AD -RGC SELECT  
(0-3)

20 CL -K+I CNTR BITS 0-3  
(K0-K3)

20 CM -INSTR BITS 7-19

14 BD -P EXIT-TI (CLOCK)

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



WRITE RGTR & MUX

MODULE ASSY - 210 PAK  
TYPE 8T60

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

11

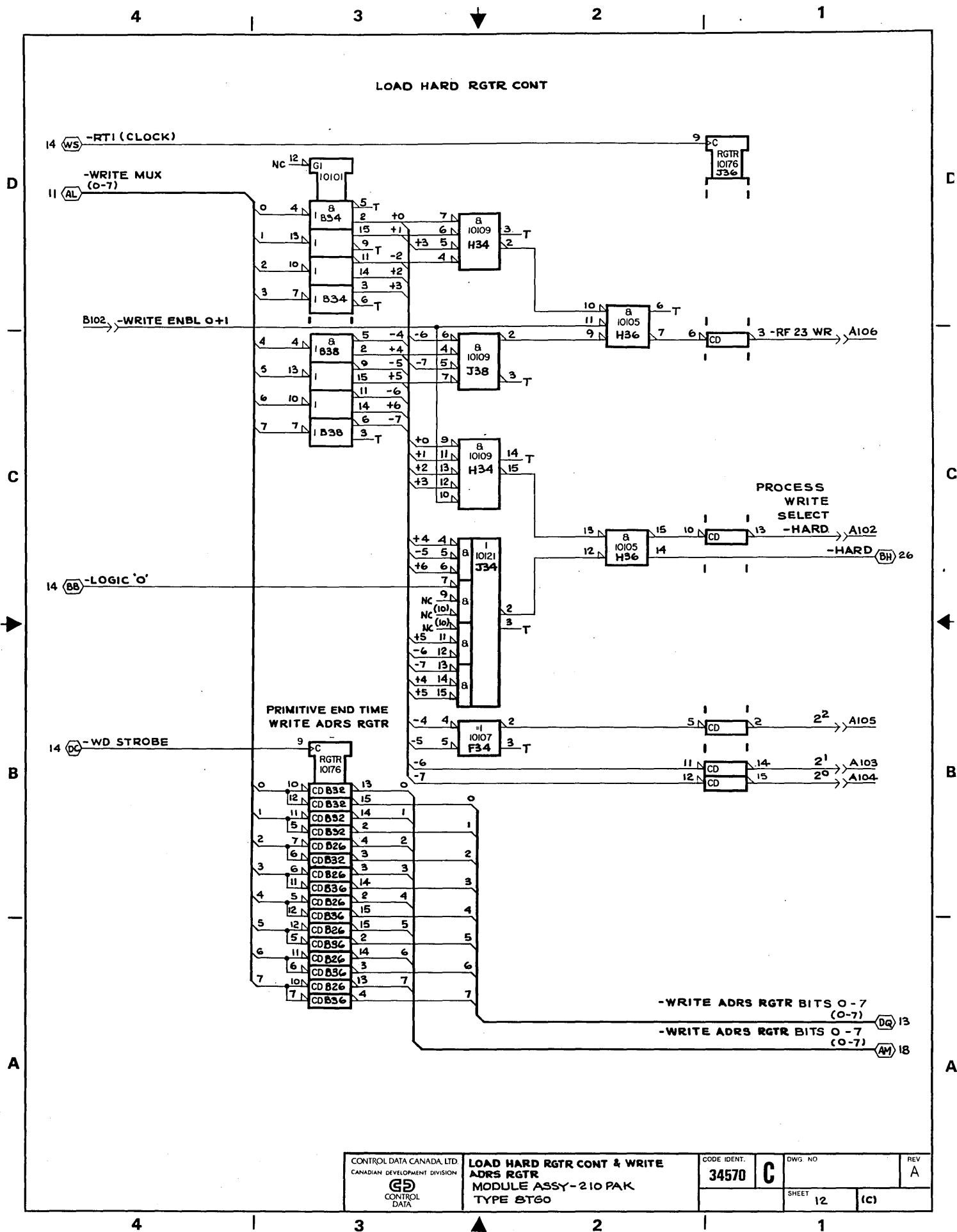
(B)

4

3

2

1



4

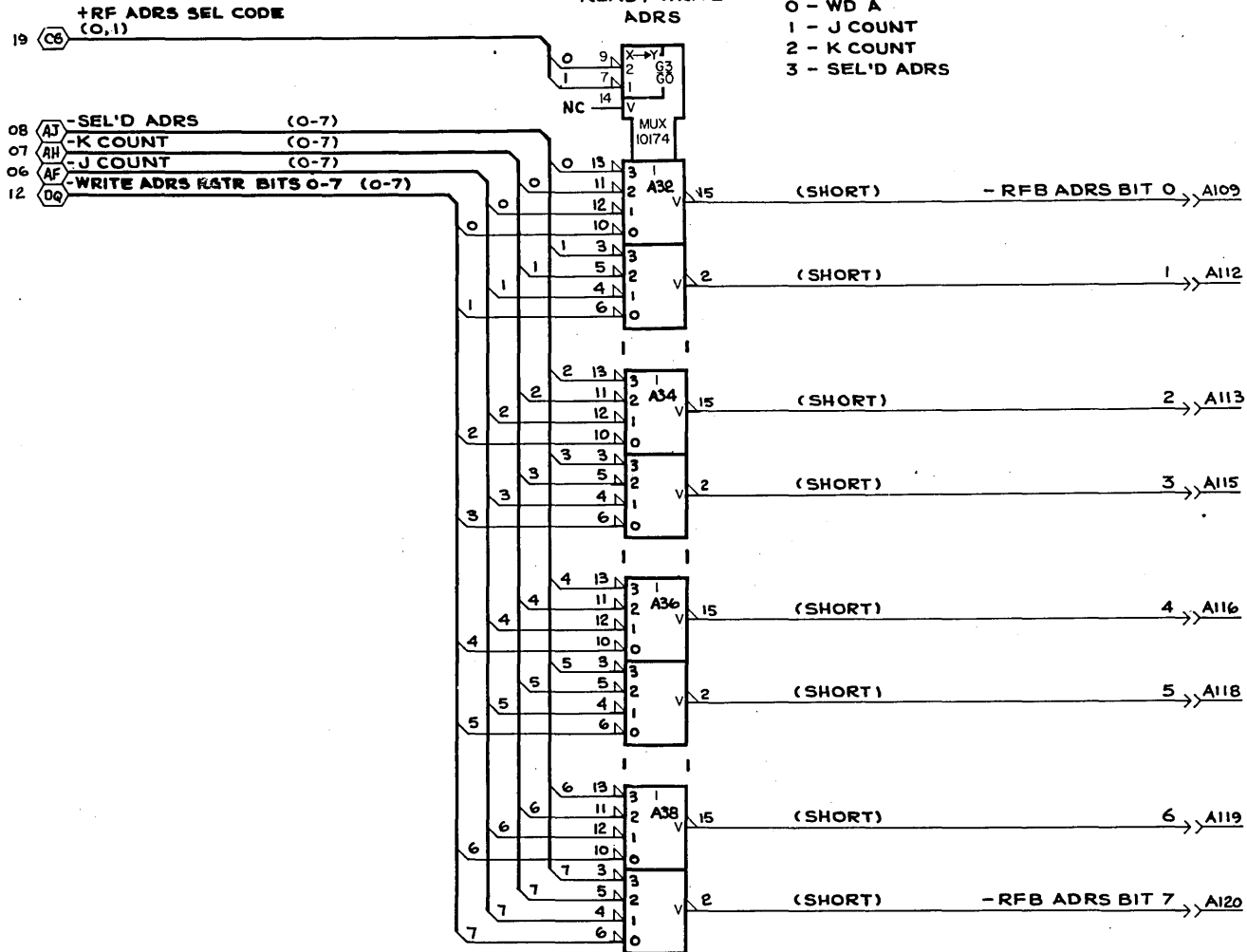
3

2

1

RGTR FILE B  
READ / WRITE  
ADRS

RFB MUX  
0 - WD A  
1 - J COUNT  
2 - K COUNT  
3 - SEL'D ADRS



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

**RFB ADRS MUX**  
MODULE ASSY - 210 PAK  
TYPE 8T60

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

13

(D)

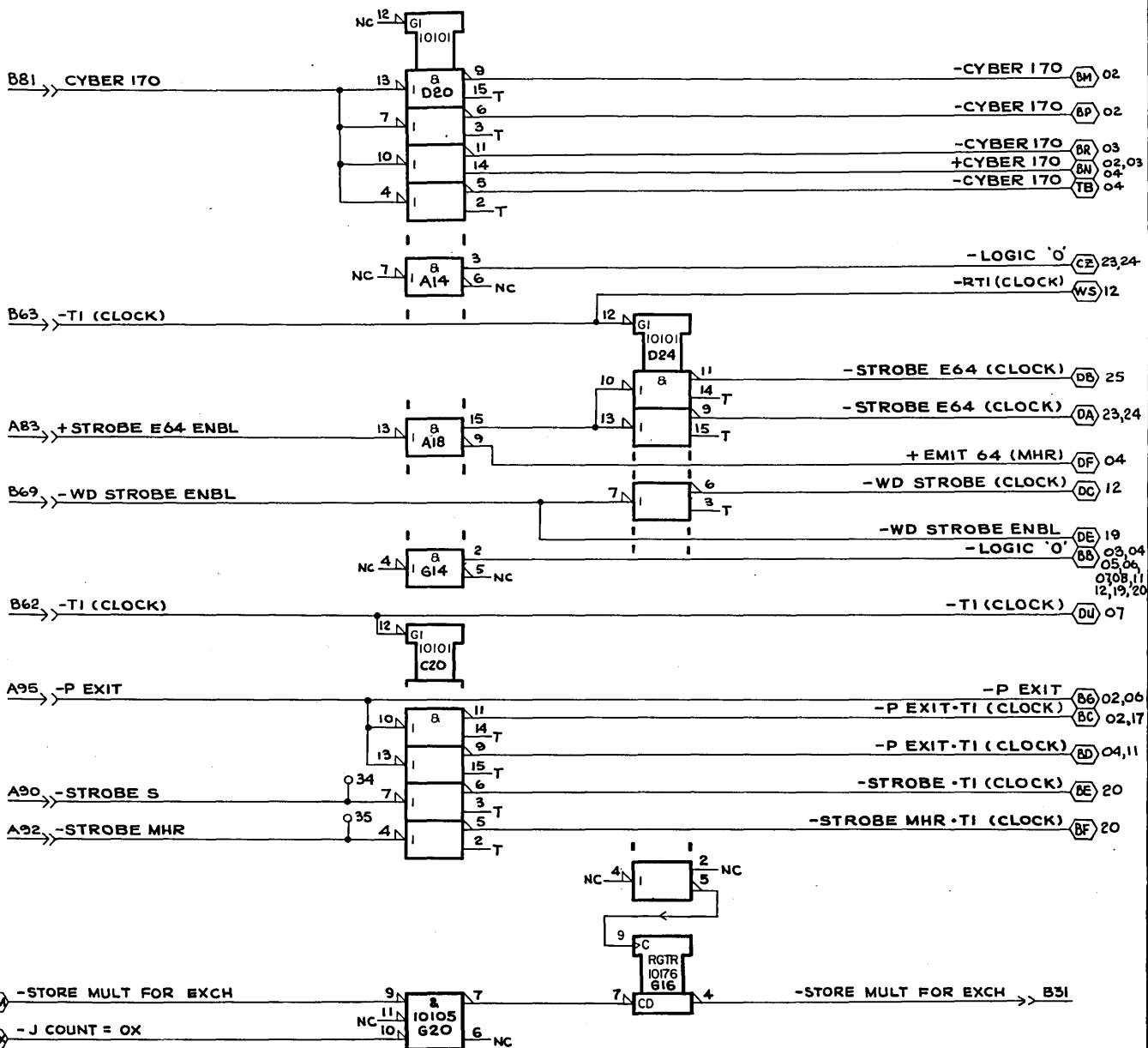
4

3

2

1







4

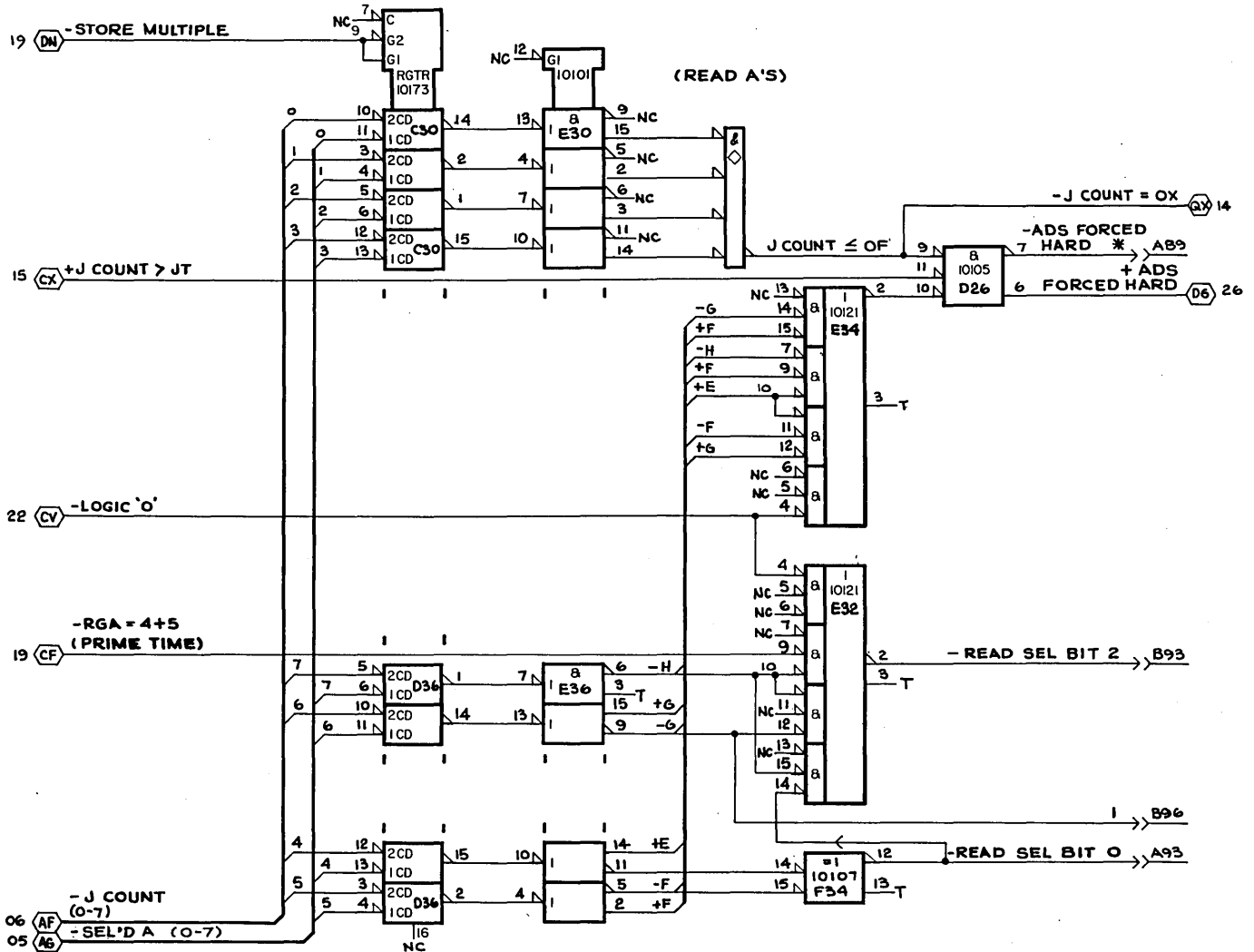
3

2

1

A REGISTER	HARD WRITE	PSR SELECT
0	0	X
1	1	1
2	1	2
3	1	3
4	1	4
5	1	5
6	1	X
7	0	X
8	0	X
9	0	X
A	1	6
B	1	7

READ SEL	PSR SELECTED
0	FLAGS
1	SFDR
2	UMR
3	MNR
4	UCR
5	MCR
6	PIT
7	PIT



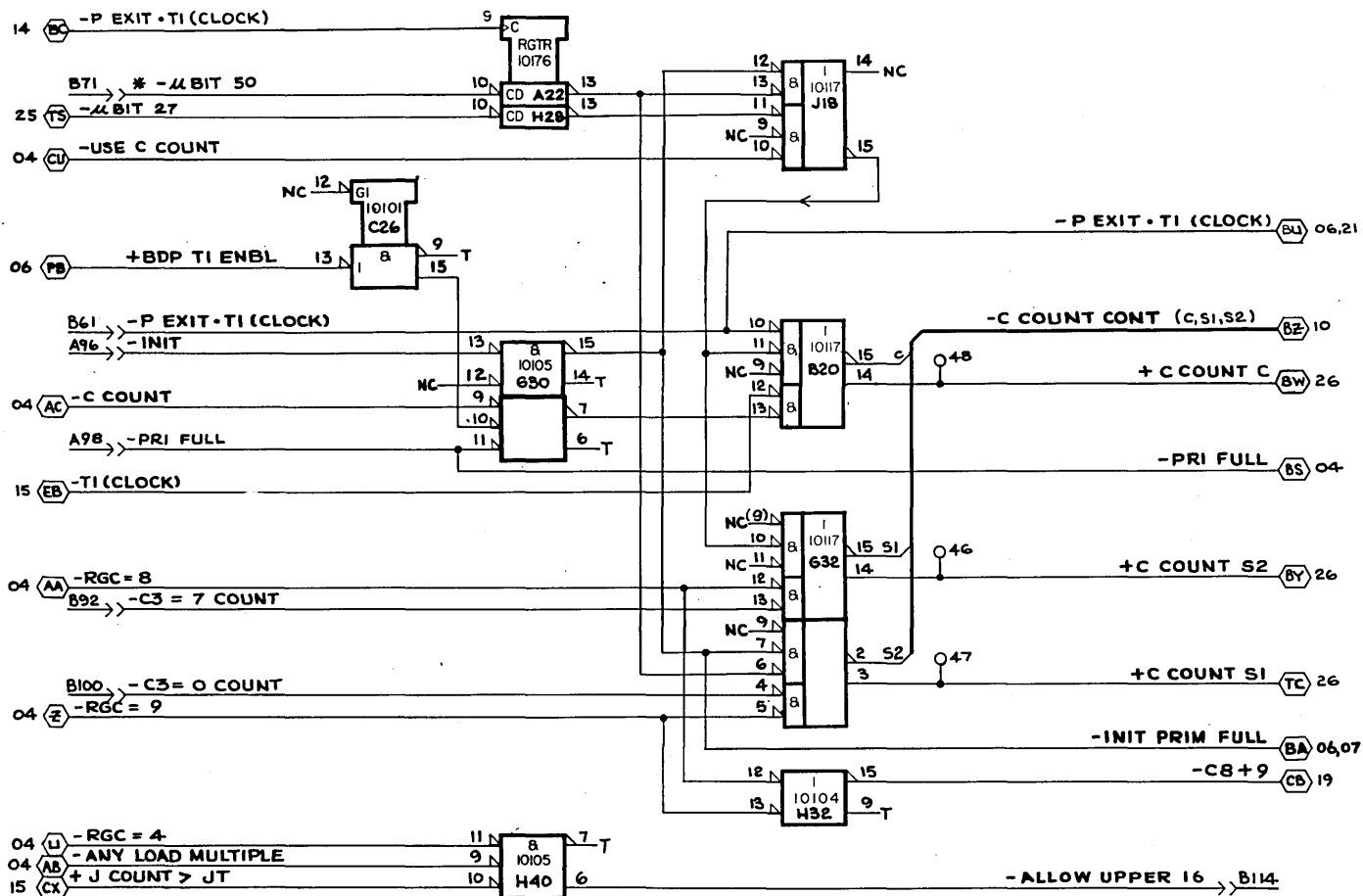
NOTE : \* SHORT

4

3

2

1



NOTE : \* SHORT AND DO NOT TERMINATE.

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

C COUNT CONT  
MODULE ASSY - 210 PAK  
TYPE 8T60

CODE IDENT.  
34570

DWG NO

SHEET 17

REV  
A

(H)

4

3

2

1

4

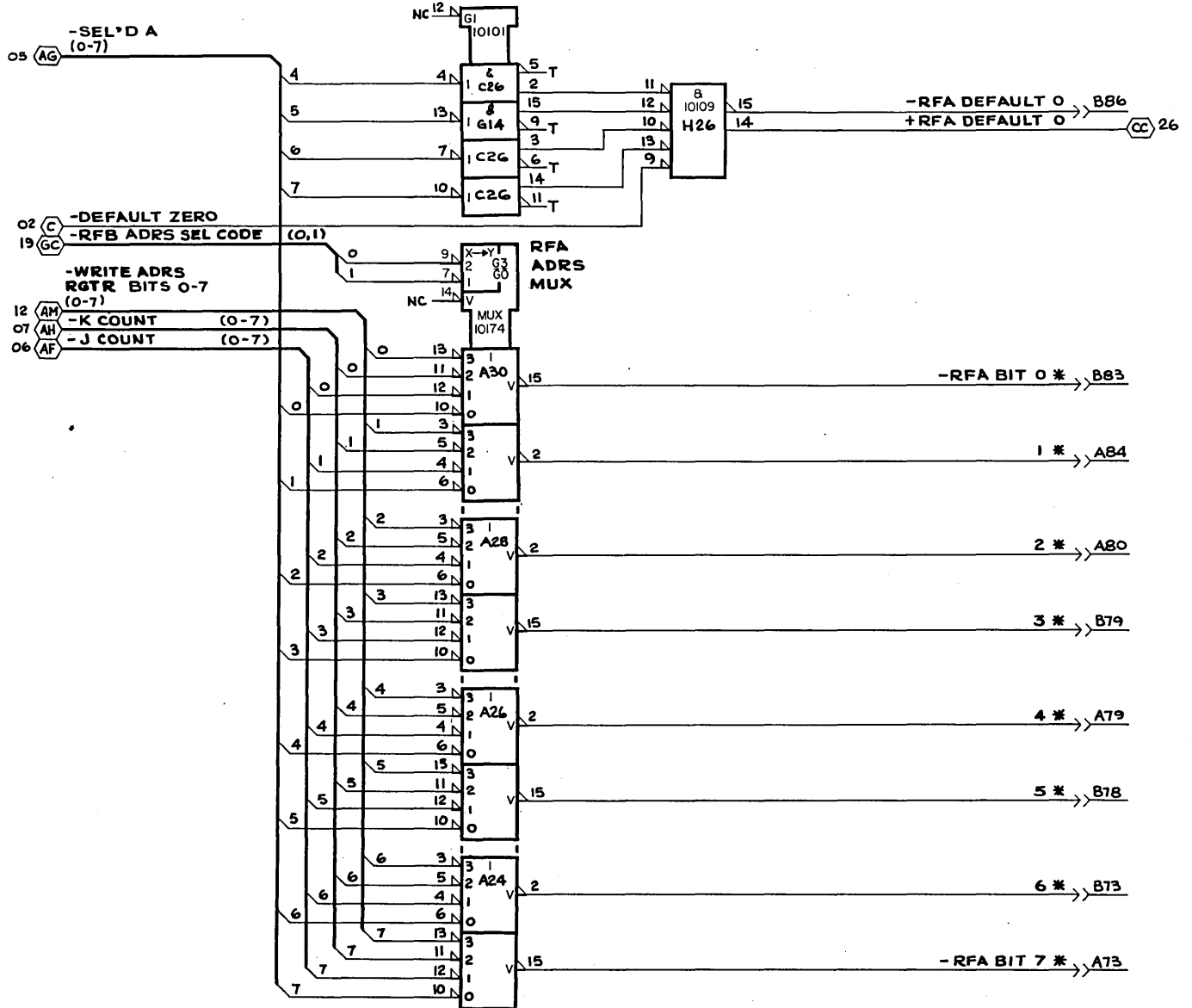
3

2

1

D

D



C

C

B

B

A

A

NOTE : \* SHORT AND USE DESIGNATED PINS

LOCATE 10174 CHIPS IN ROW A OR B.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

RFA ADRES MUX.  
MODULE ASSY - 210PAK  
TYPE 8T60

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET 18 (J)

4

3

2

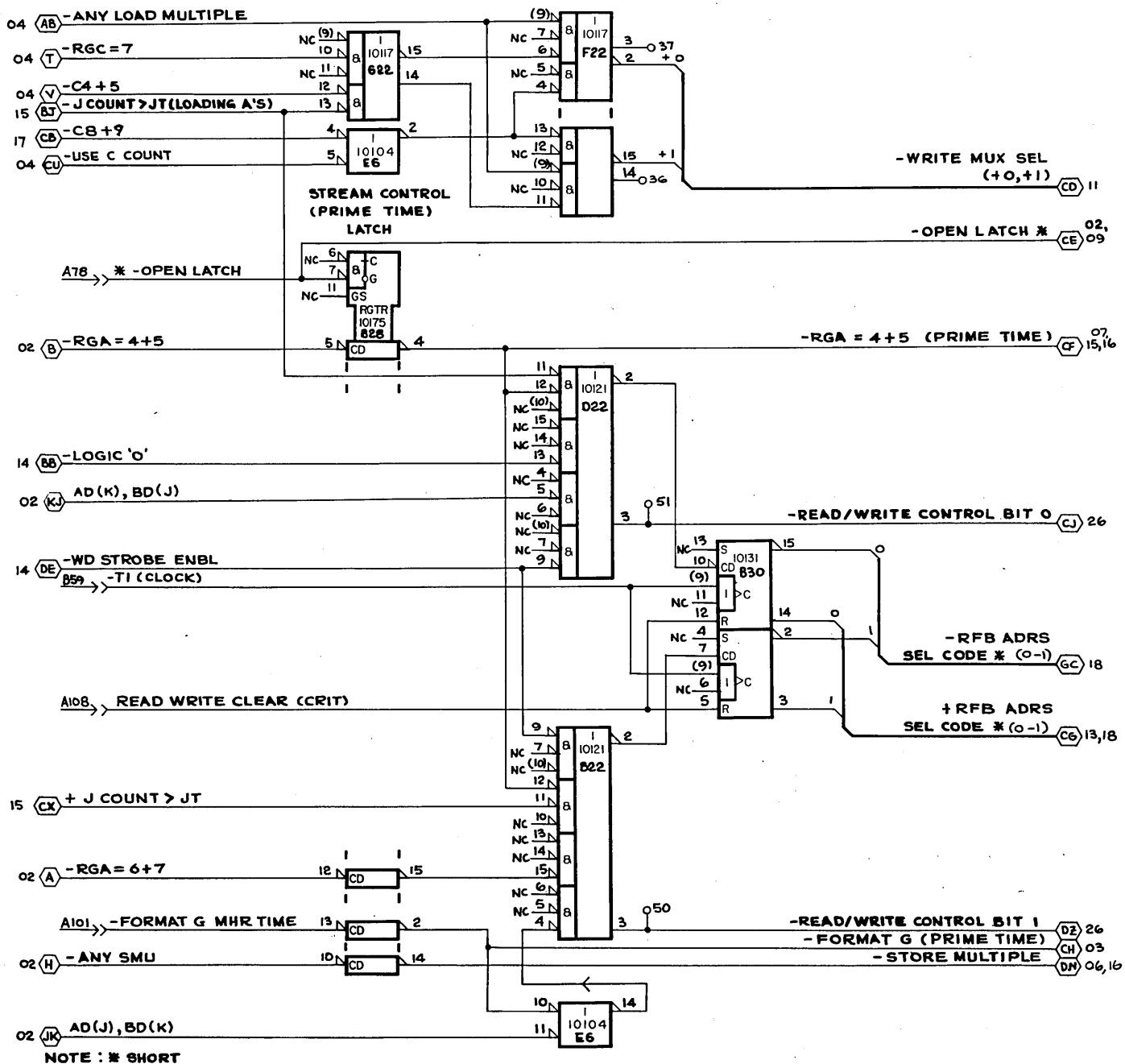
1

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

WRITE MUX CONT & RF ADRS  
SEL CONT  
MODULE ASSY - 210PAK  
TYPE 8T60

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

19

(K)

4

3

2

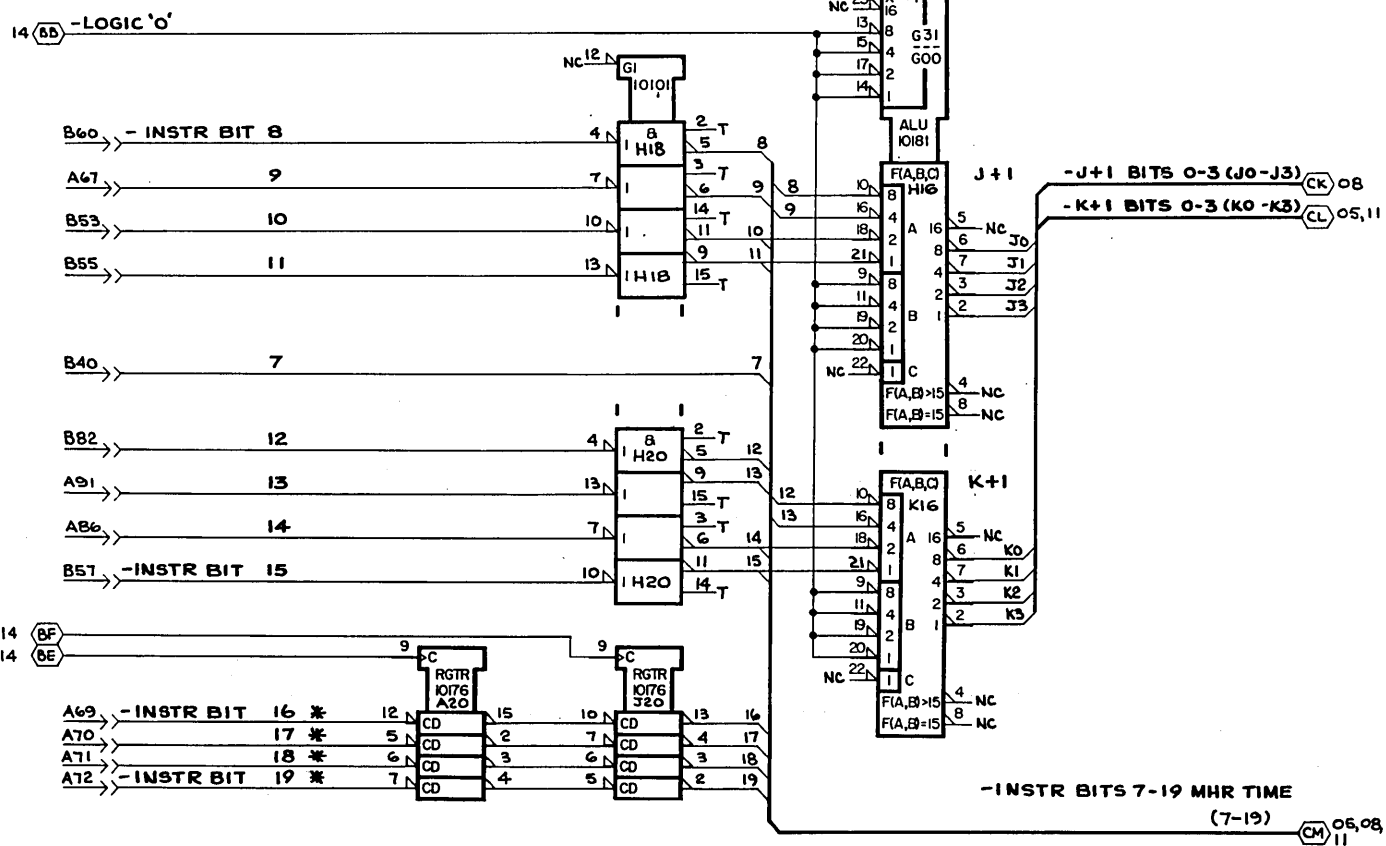
1

4

3

2

1



NOTE : \* DO NOT TERMINATE.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

J+1, K+1

MODULE ASSY - 210 PAK  
TYPE 8T60

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET  
20

(1)

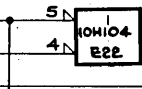
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3

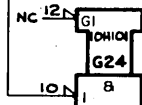
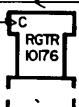
2

1

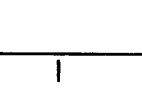
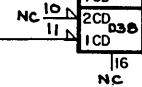
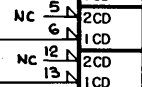
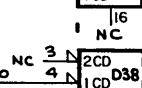
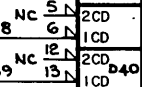
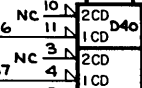
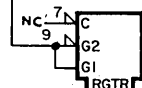
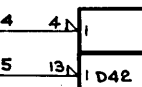
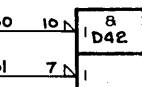
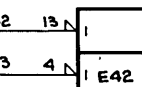
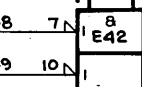
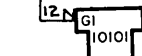
04 X -RGC = B  
 04 Y -RGC = A  
 17 BU -P EXIT-T1(CLOCK)



STACK FRAME  
 DESCRIPTOR  
 RGTR



22 CY -LOGIC '0'  
 -WDMX BITS 48-60  
 (48-60)  
 10 CN

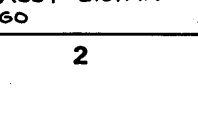
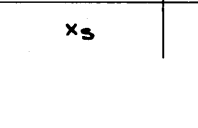
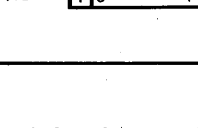
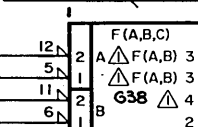
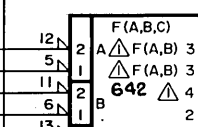
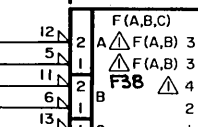
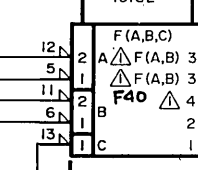
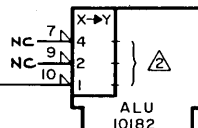


B116 -> -WDMX BIT 61  
 A114 -> 62  
 B115 -> -WDMX BIT 63

OUTPUT MODIFIER VALID ONLY FOR  
 ARITHMETIC SUMMING FUNCTIONS.

FUNCTION TABLE

X	Y	FUNCTION
7	F	$F = \Sigma A, B, C$
6	F	$F = \Sigma A, B, C$
5	F	$F = \Sigma A, B, C$
4	F	$F = 2A$
3	F	$F = A \oplus B$
2	F	$F = A = B$
1	F	$F = A + B$
0	F	$F = A * B$



-A LENGTH BITS 0-3,  
 X LENGTH BITS 0-3  
 -AT BITS 56-59 (56-59)  
 (AT ≥ AS → C)

48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63  
 AS XS AT XT

NOTE: THIS DRAWING IS APPLICABLE  
 ONLY TO PWB P/N 19267369.

CONTROL DATA CANADA LTD.  
 CANADIAN DEVELOPMENT DIVISION



CONTROL  
 DATA

A, X LENGTH DETERMINATION  
 MODULE ASSY-210PAK  
 TYPE 8T60

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

21

(M)

4

3

2

1



4

3

2

1

04 X -RGC = B  
 04 Y -RGC = A  
 17 AU -P EXIT -T1 (CLOCK)

22 CV -LOGIC '0'  
 -WDMX BITS 48-60  
 10 CN (48-60)

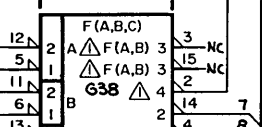
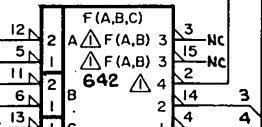
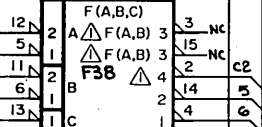
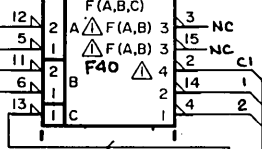
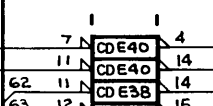
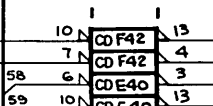
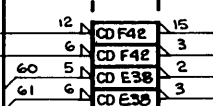
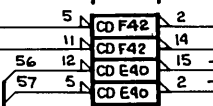
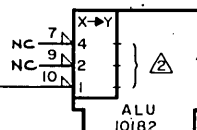
B116 -WDMX BIT 61  
 A114  
 B115 -WDMX BIT 63

△ OUTPUT MODIFIER VALID ONLY FOR  
 ARITHMETIC SUMMING FUNCTIONS.

△ FUNCTION TABLE

X → Y OUTPUT	FUNCTION
7	F = ΣA,B,C
6	F = ΣA,B,C
5	F = ΣA,B,C
4	F = 2A
3	F = A ⊕ B
2	F = A = B
1	F = A = B
0	F = A = B

STACK FRAME  
 DESCRIPTOR  
 RGTR



-A LENGTH BITS 0-3,  
 X LENGTH BITS 0-3  
 -AT BITS 56-59 (56-59)  
 (AT ≥ AS → C)

48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63  
 A<sub>S</sub> X<sub>S</sub> A<sub>T</sub> X<sub>T</sub>

NOTE: THIS DRAWING IS APPLICABLE  
 ONLY TO PWB P/N 19266620.

CONTROL DATA CANADA LTD.  
 CANADIAN DEVELOPMENT DIVISION  
 CD  
 CONTROL  
 DATA

A, X LENGTH DETERMINATION  
 MODULE ASSY - 210PAK  
 TYPE 8T60

CODE IDENT. 34570 C  
 DWG NO. 21A (M)  
 REV A

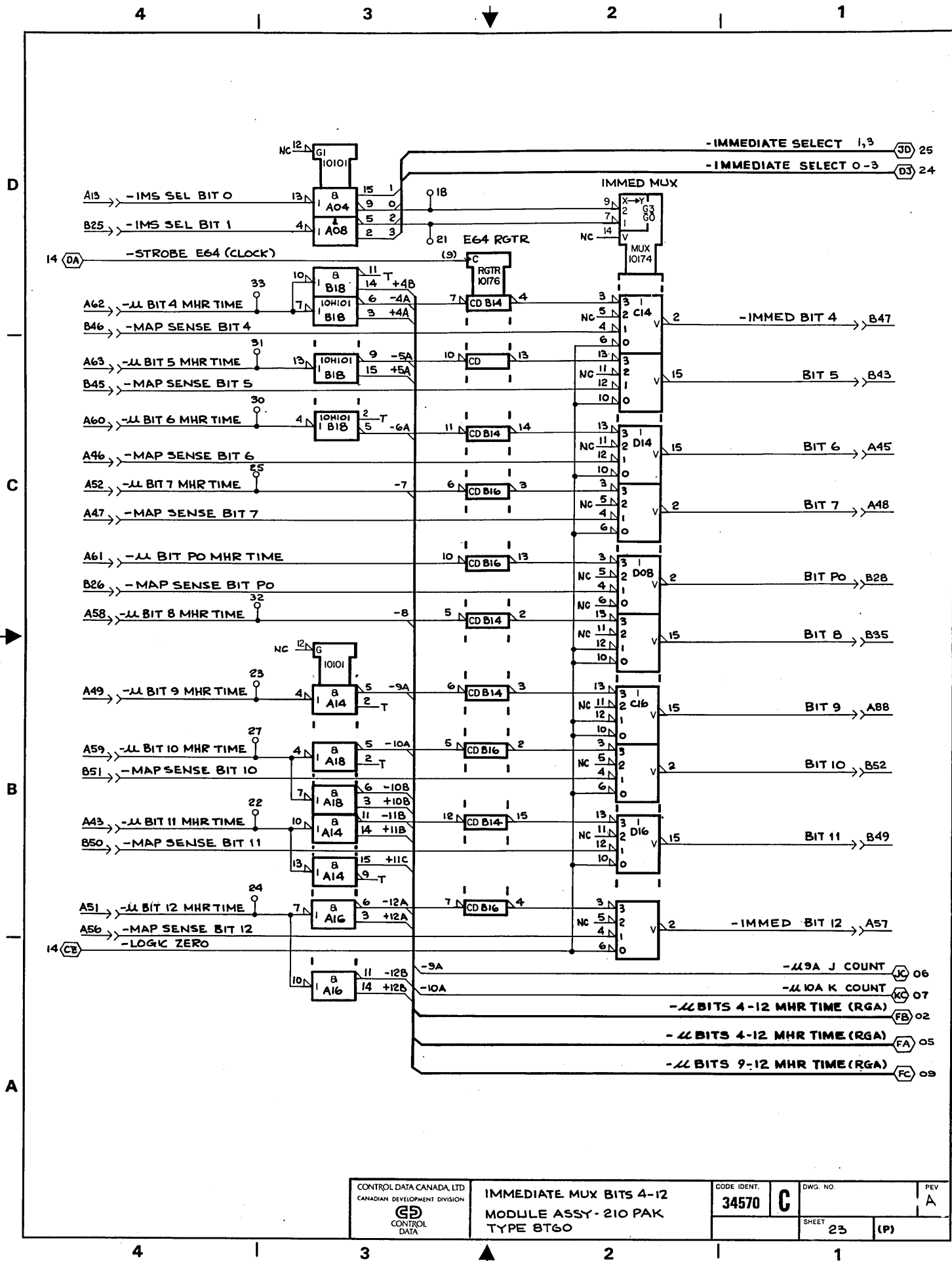
4

3

2

1





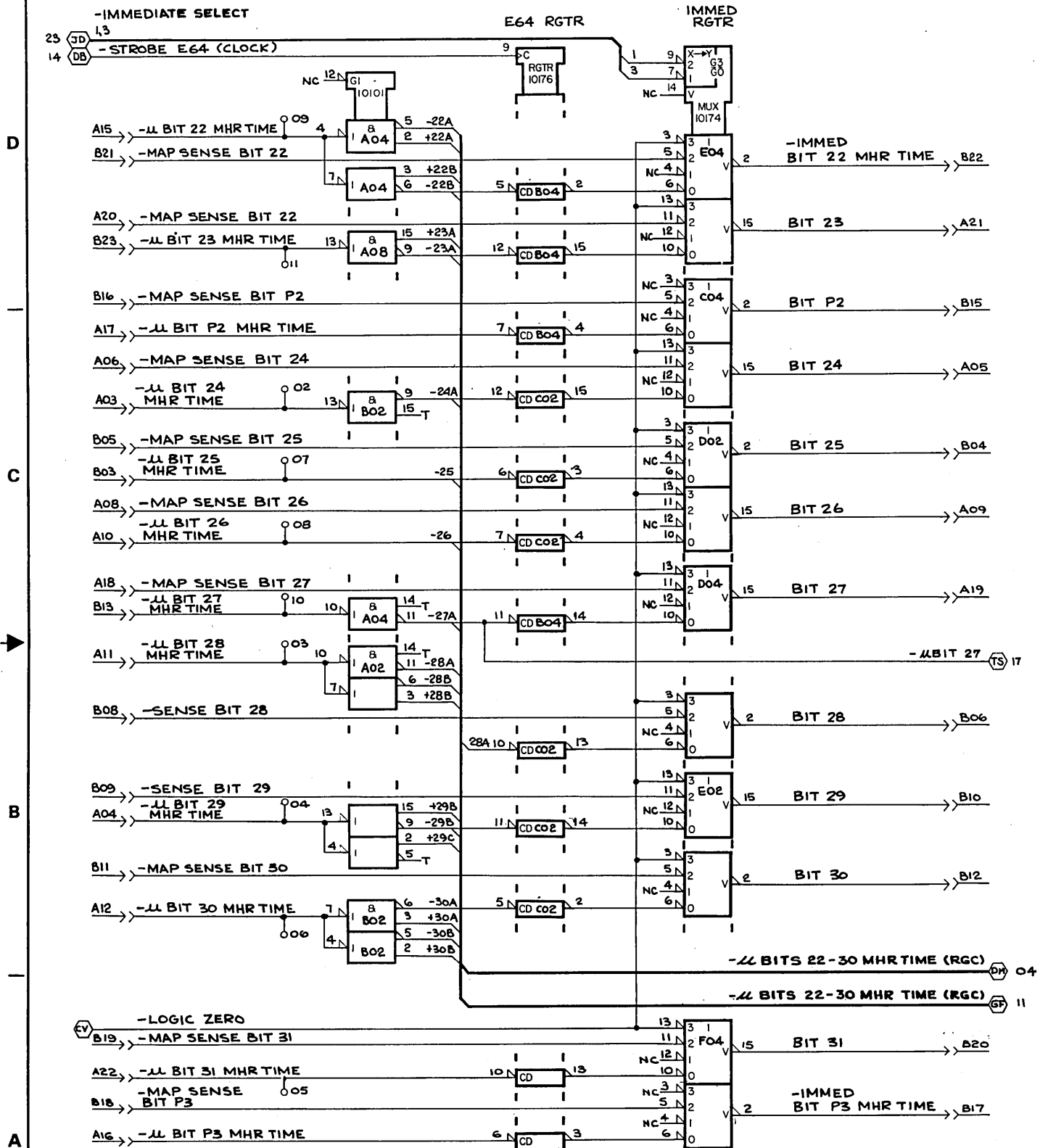


4

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1



4

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2

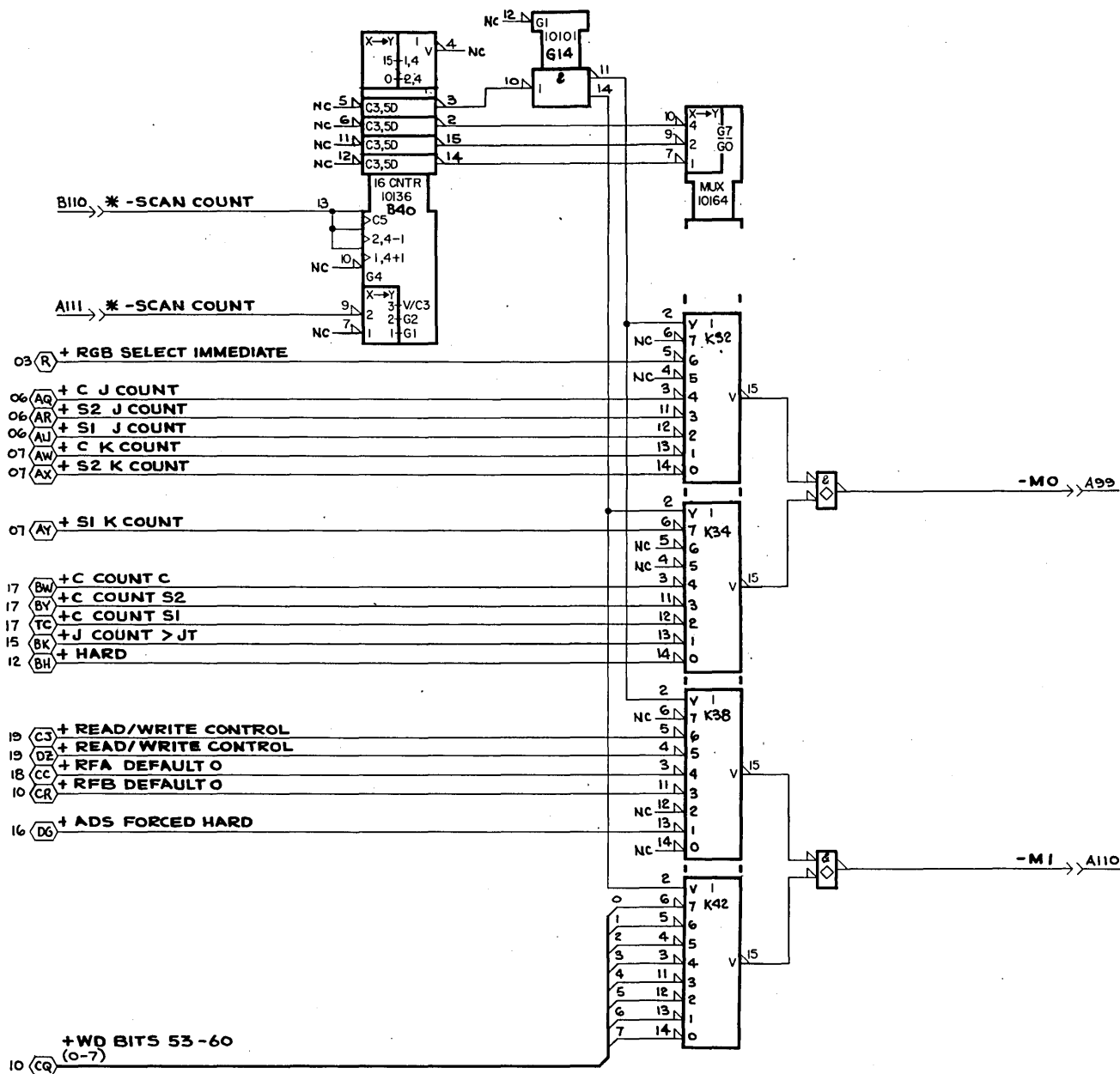
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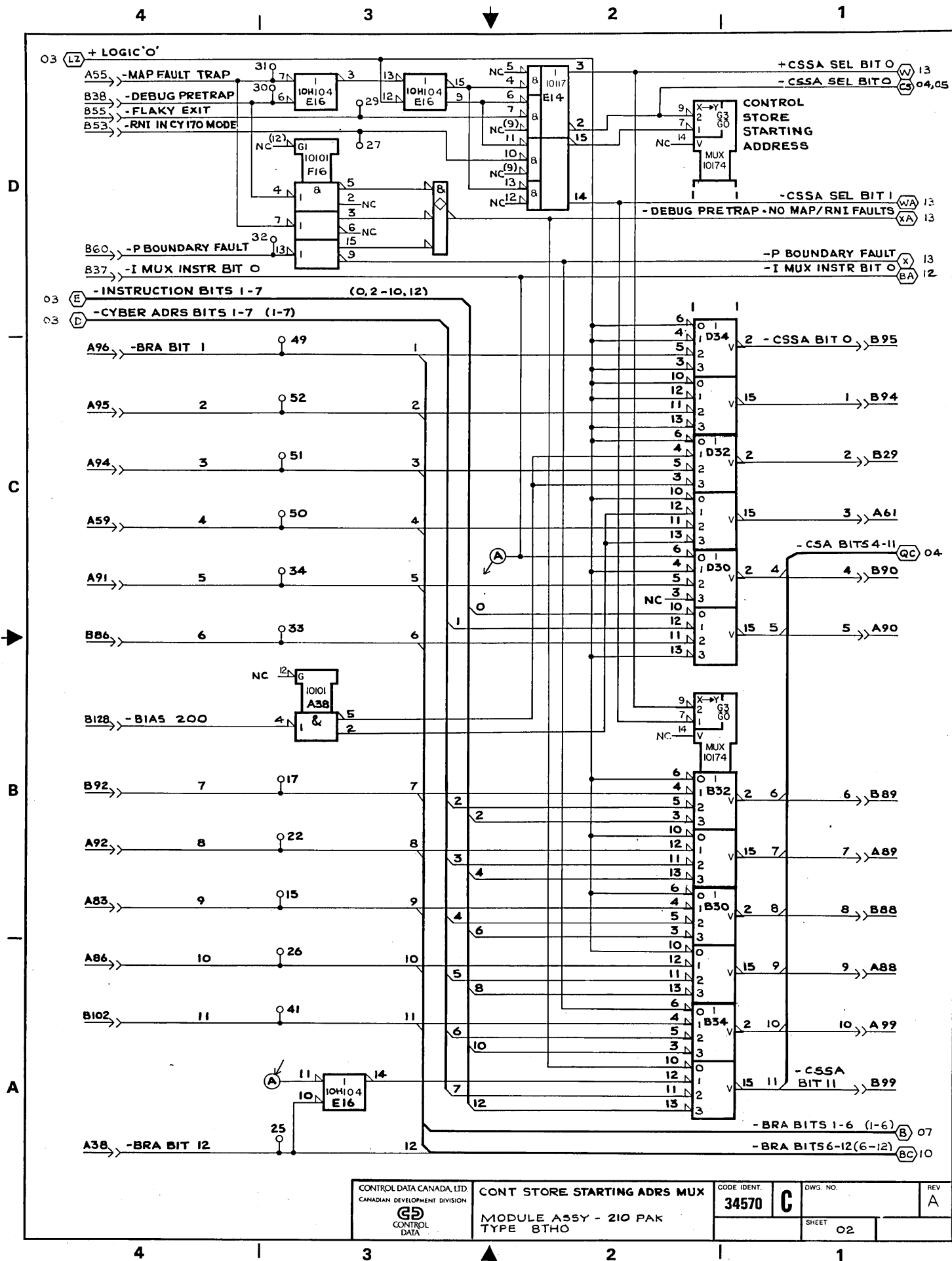
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3

2

1



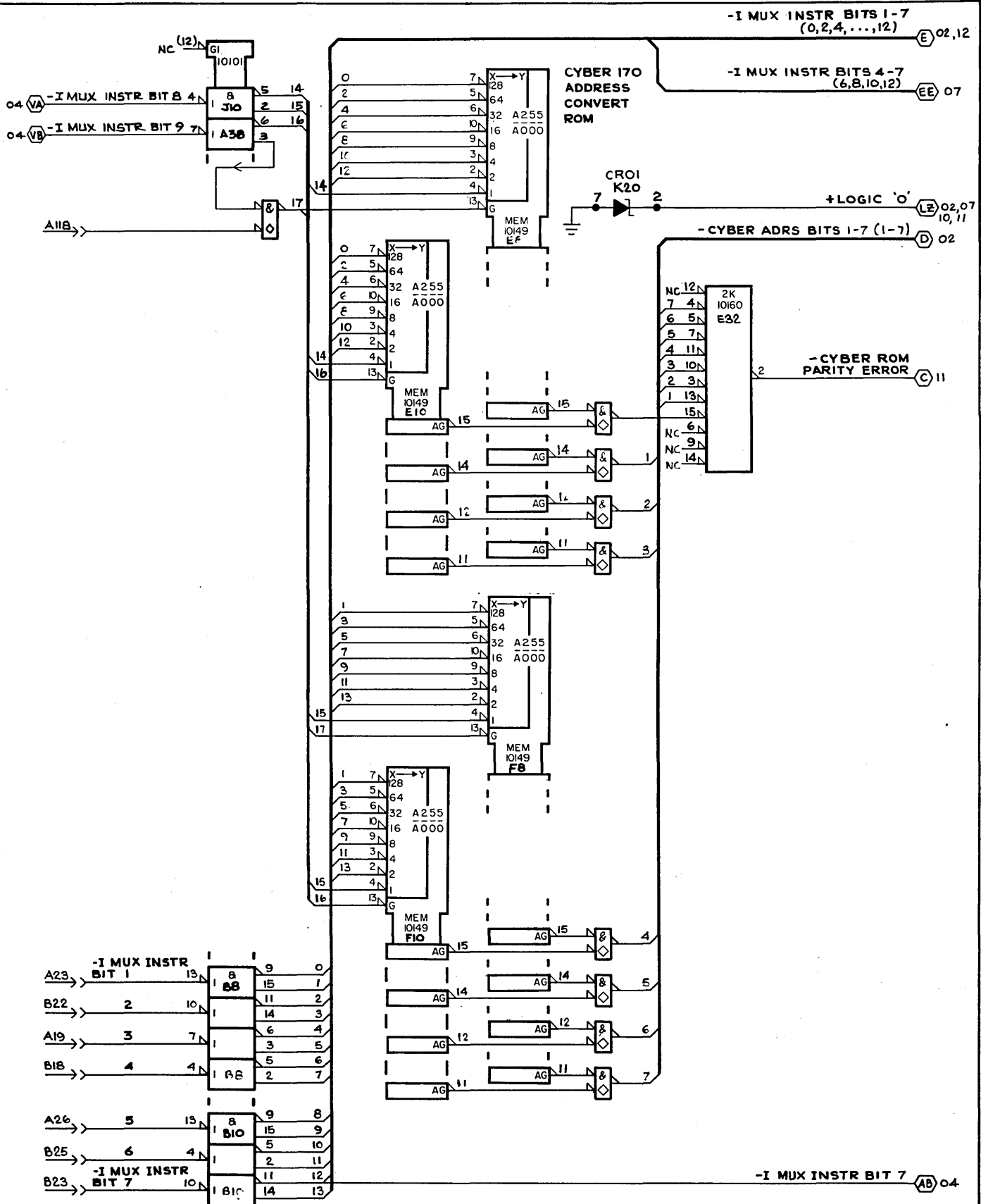


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1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



CYBER 170 ADDRESS CONVERT ROM

MODULE ASSY - 210 PAK  
TYPE 8THO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

03

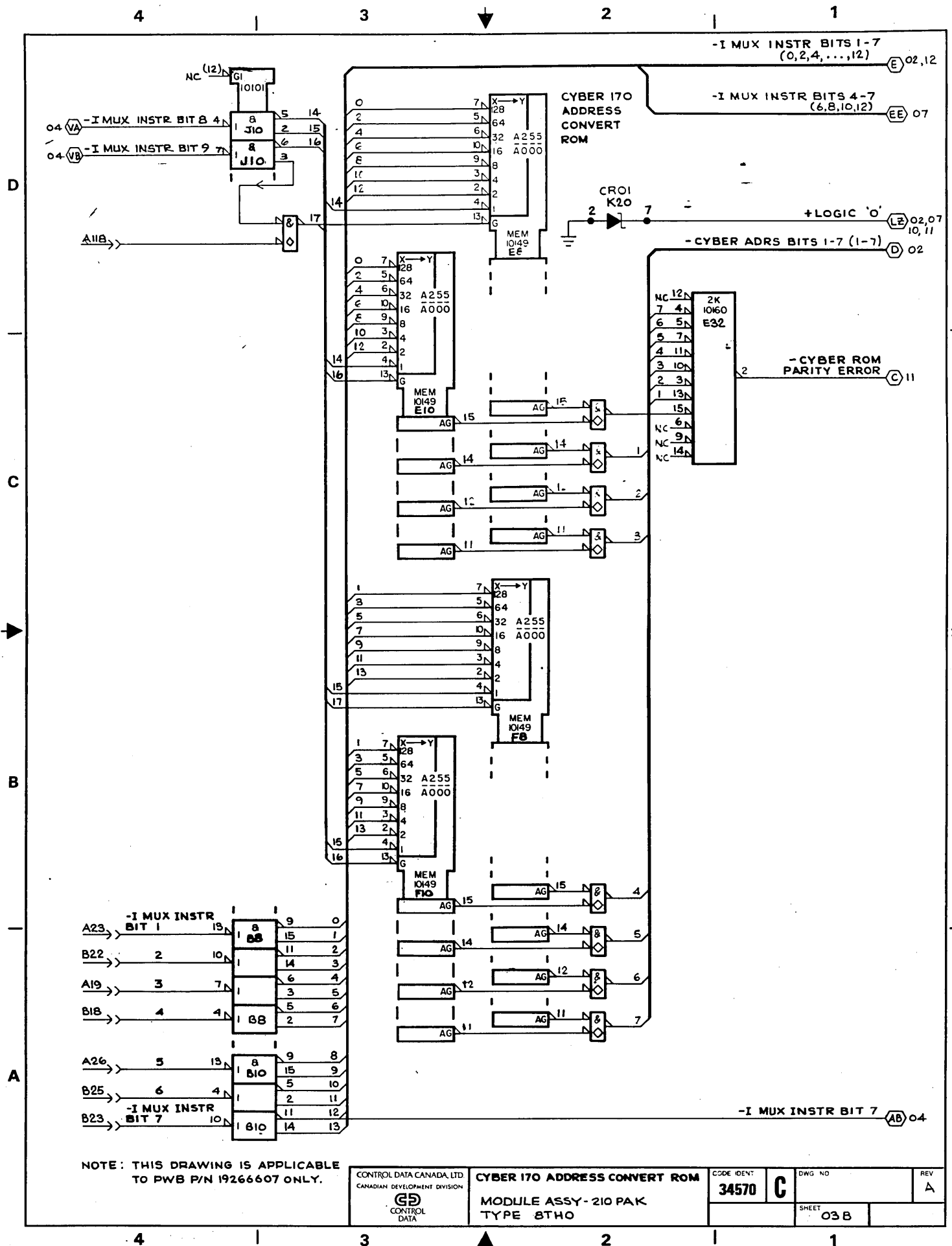
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3

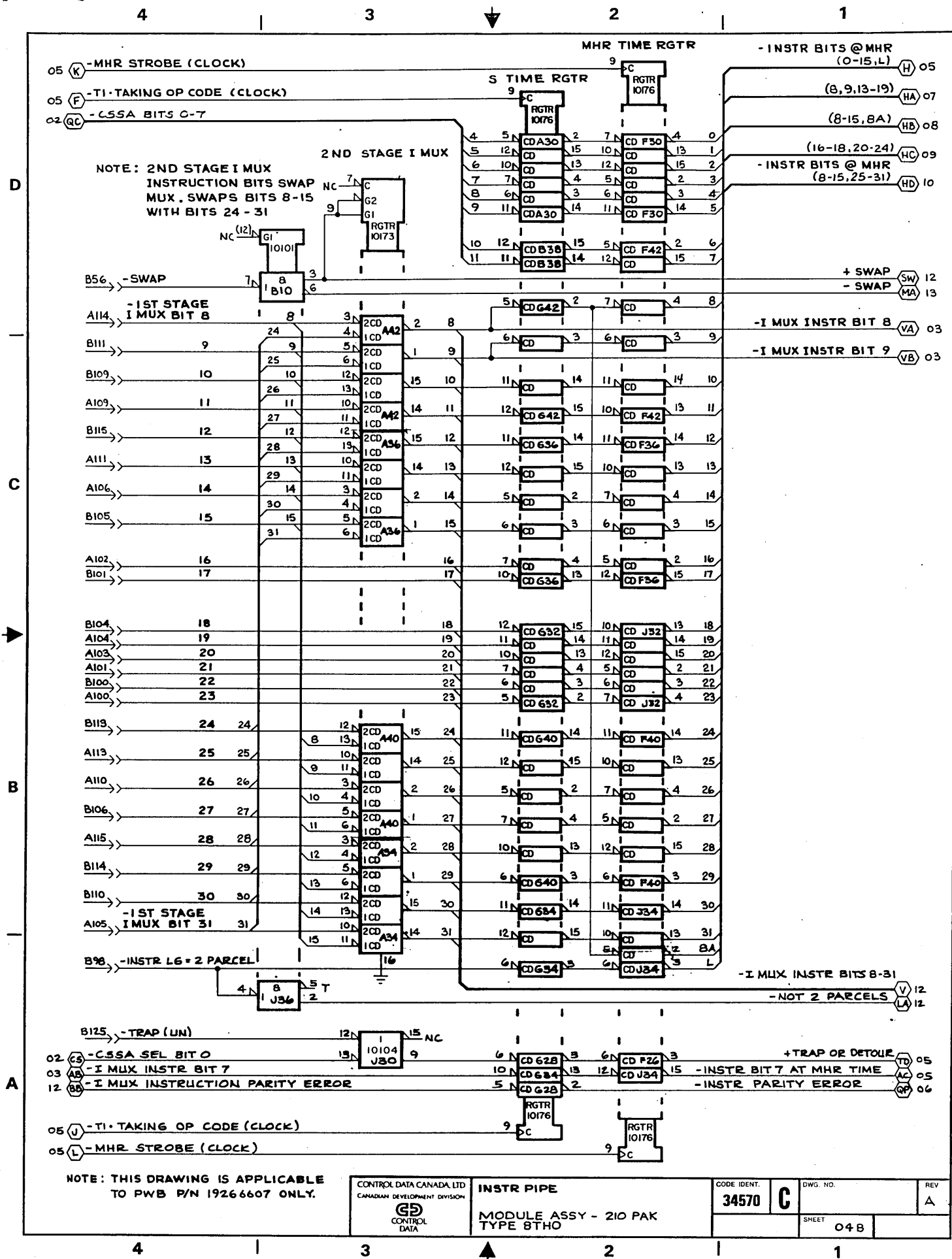
2

1







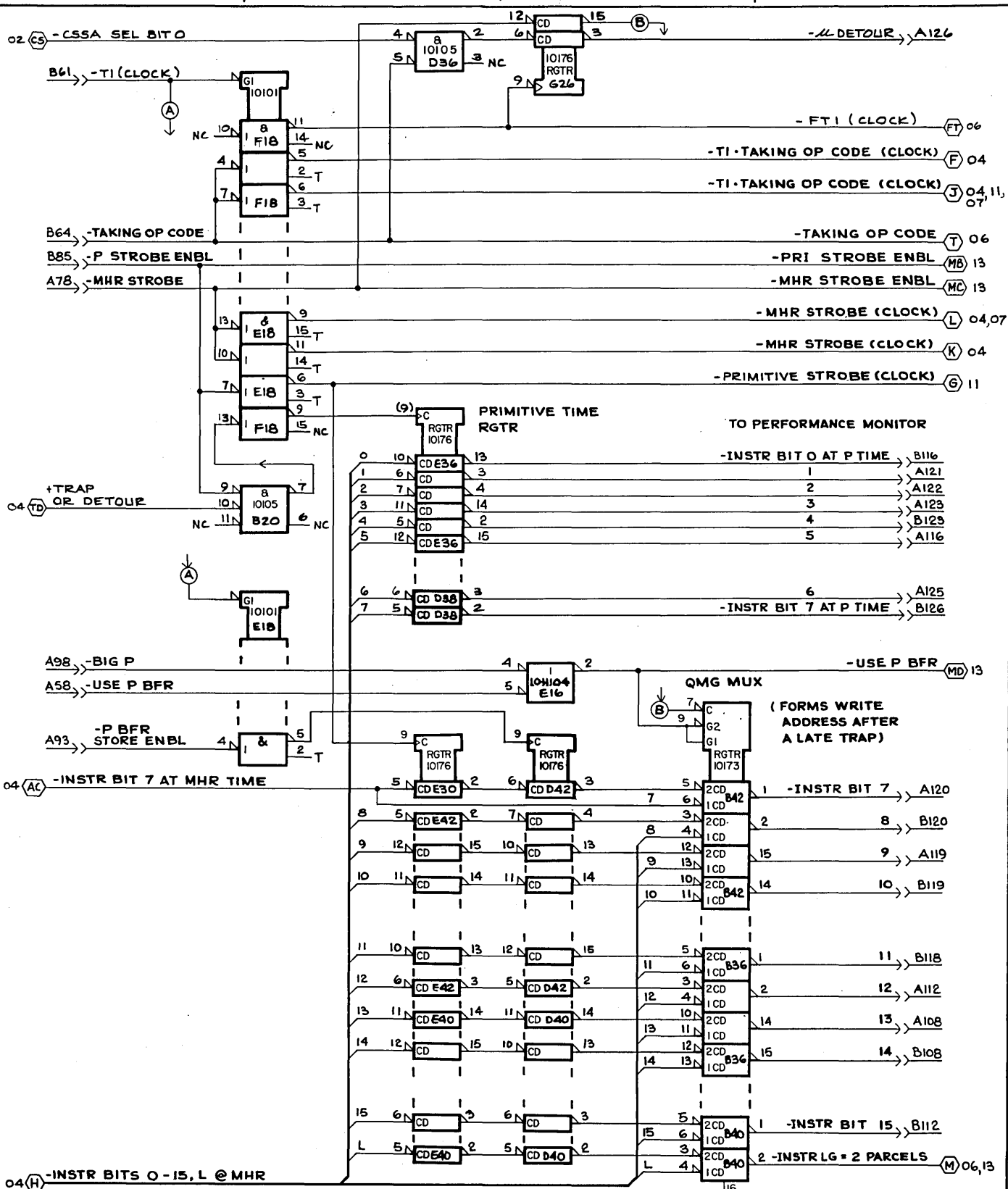


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1

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION

CONTROL DATA

RF READ, WR ADRS

MODULE ASSY - 210PAK  
TYPE 8THO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

05

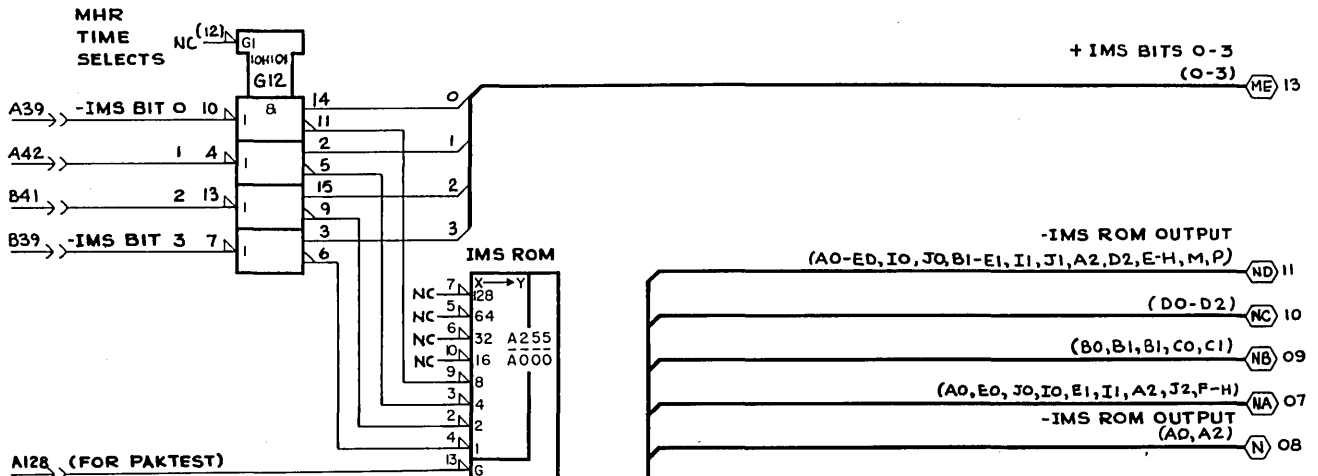
4

3

2

1

D



C

08 (R) -IMMED DATA MUX BIT 32

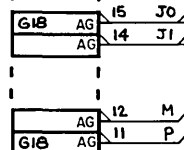
4-2

4-3

4-4

05 (M) -INSTR LG= 2 PARCELS

ROM NO. 4-5



B

05 (FT) -FT1 (CLOCK)

9 C

RGTR 10176 G26

2 CD

05 (T) -TAKING OP CODE 5

04 (QP) -INSTR PARITY ERROR

-TAKING OP CODE (DLY'D) 11

8 10105 J28

2 T

3

+INSTR PARITY ERROR A127

A

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION

CD  
CONTROL  
DATA

IMMED SEL ROM  
MODULE ASSY- 210PAK  
TYPE 8TH0

CODE IDENT  
34570

DWS NO  
C

REV  
A

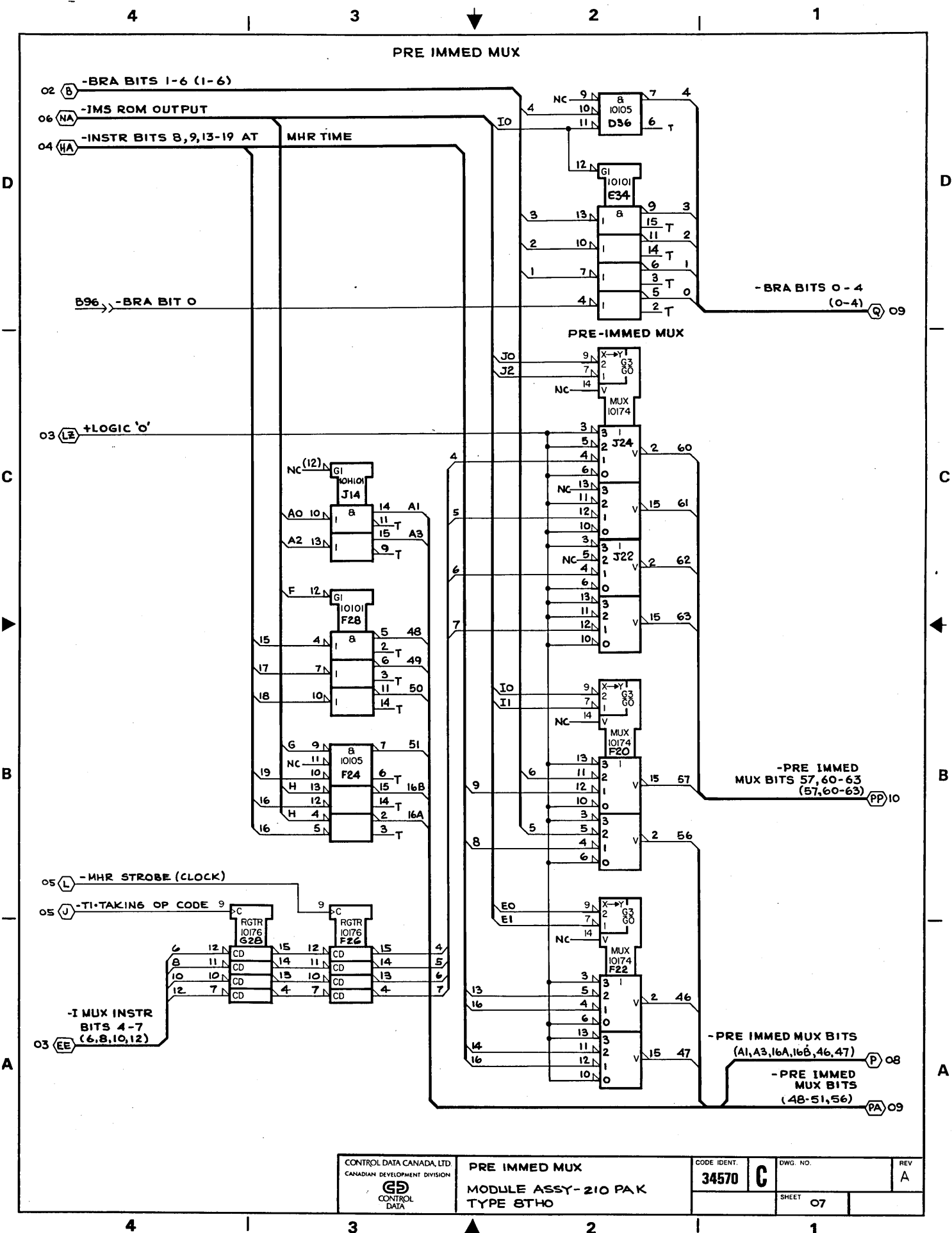
SHEET  
06

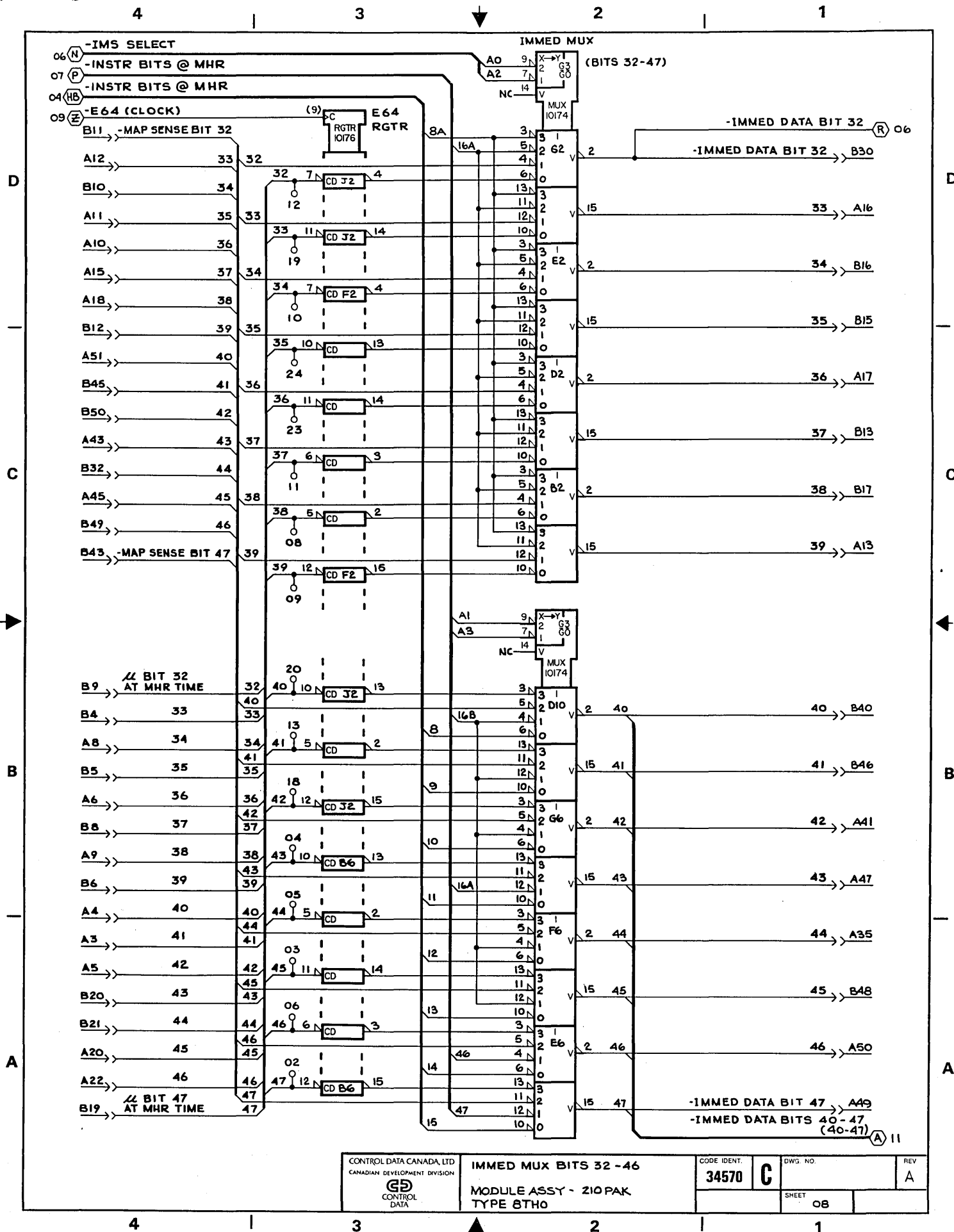
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3

2

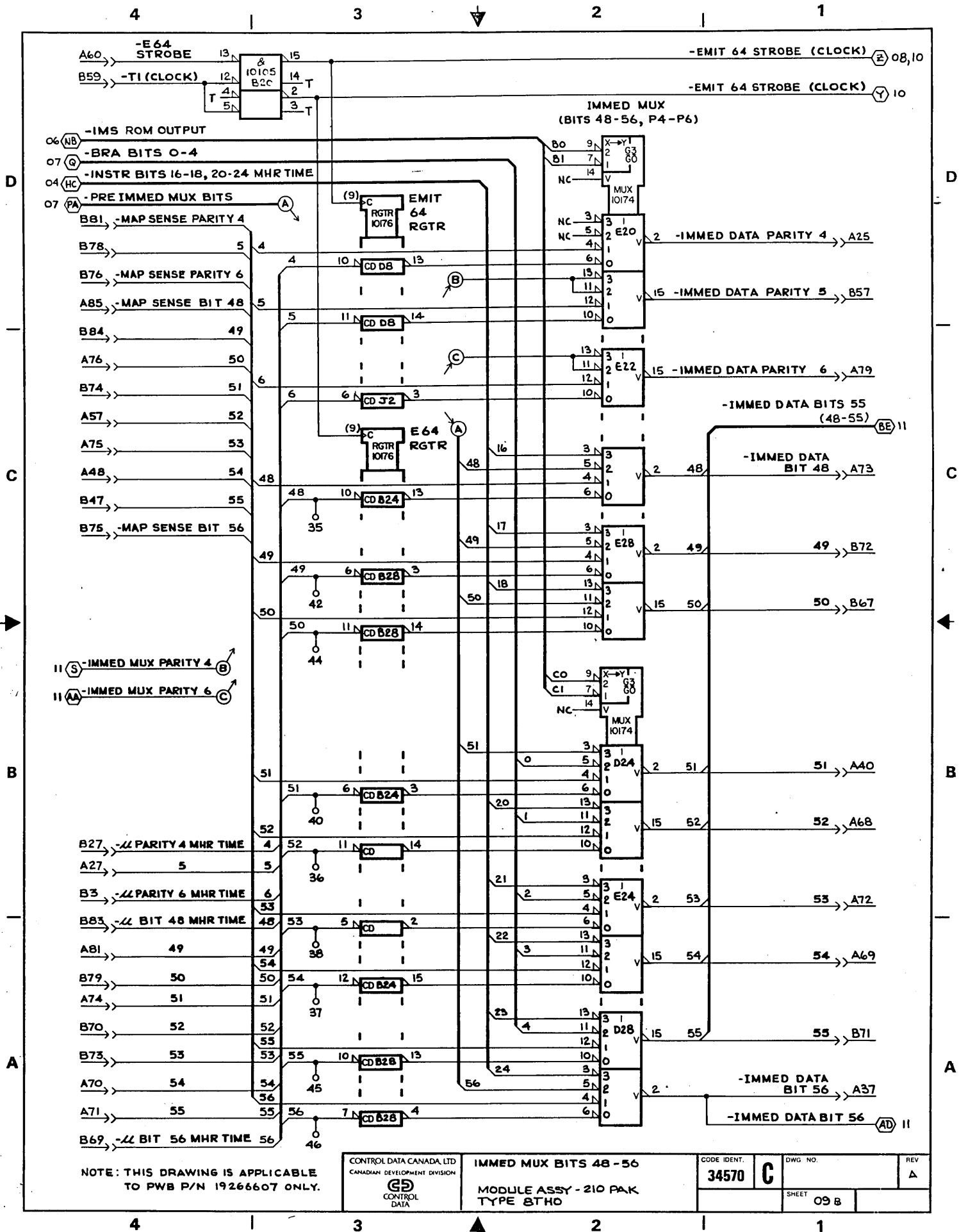
1

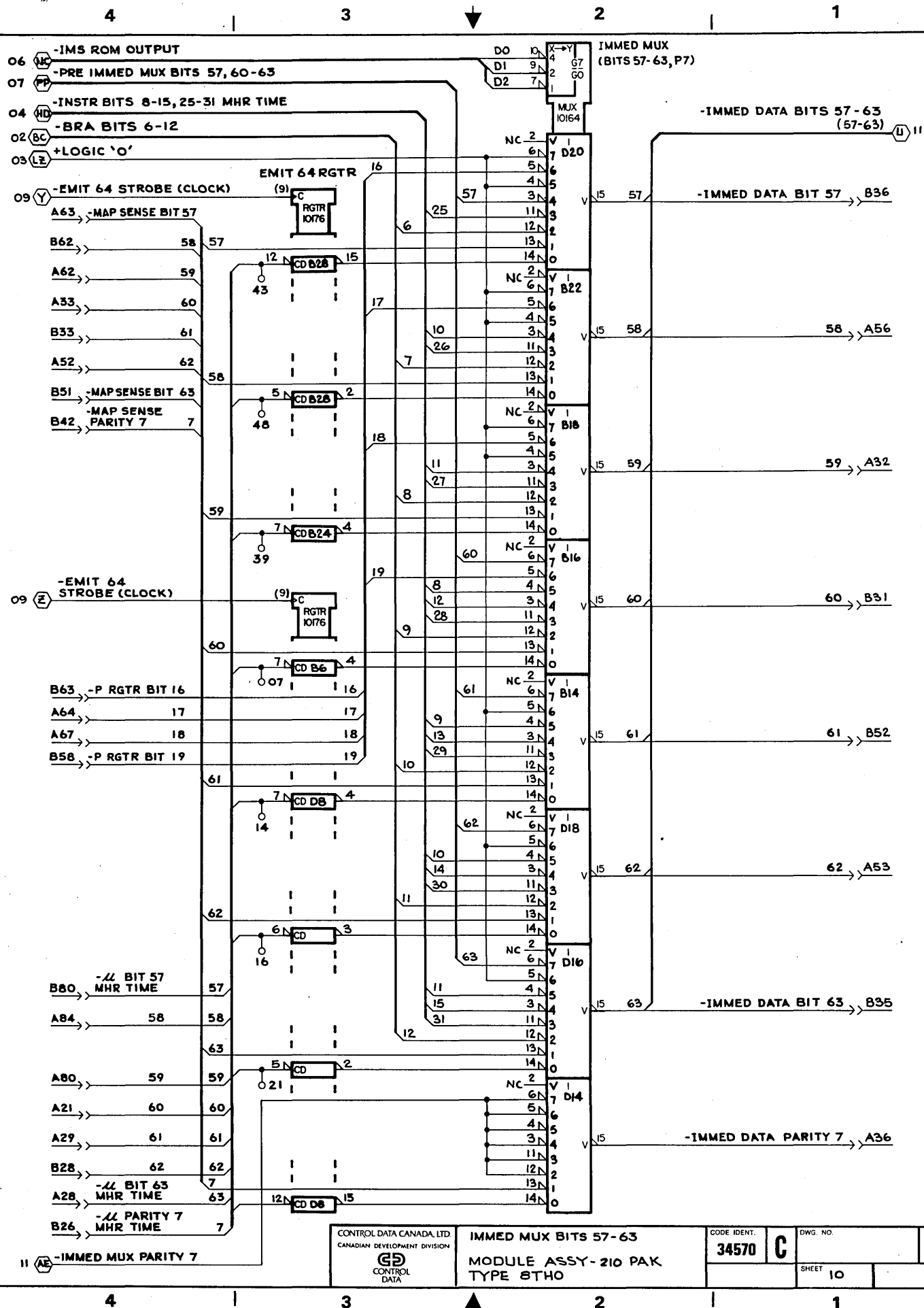


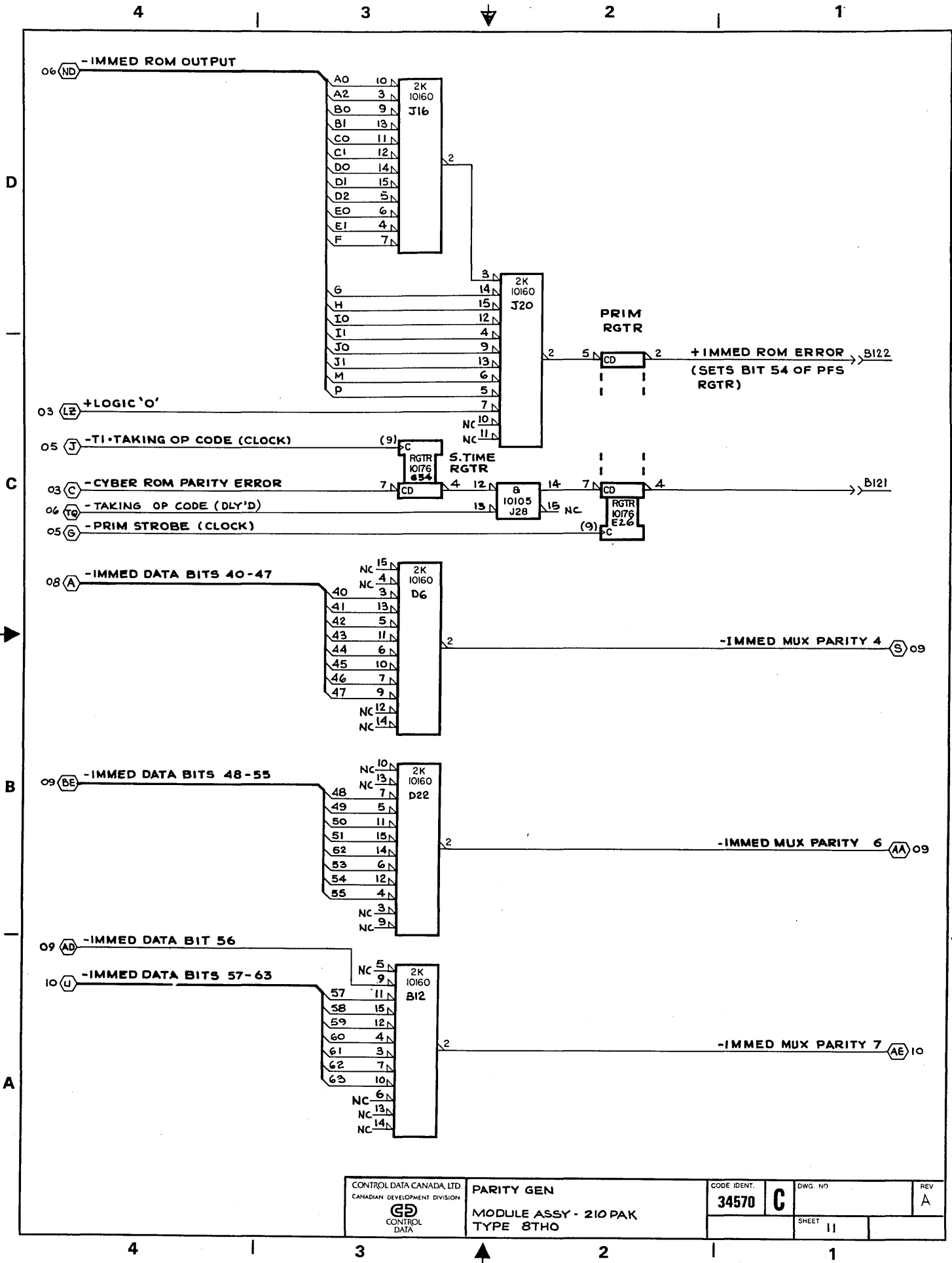










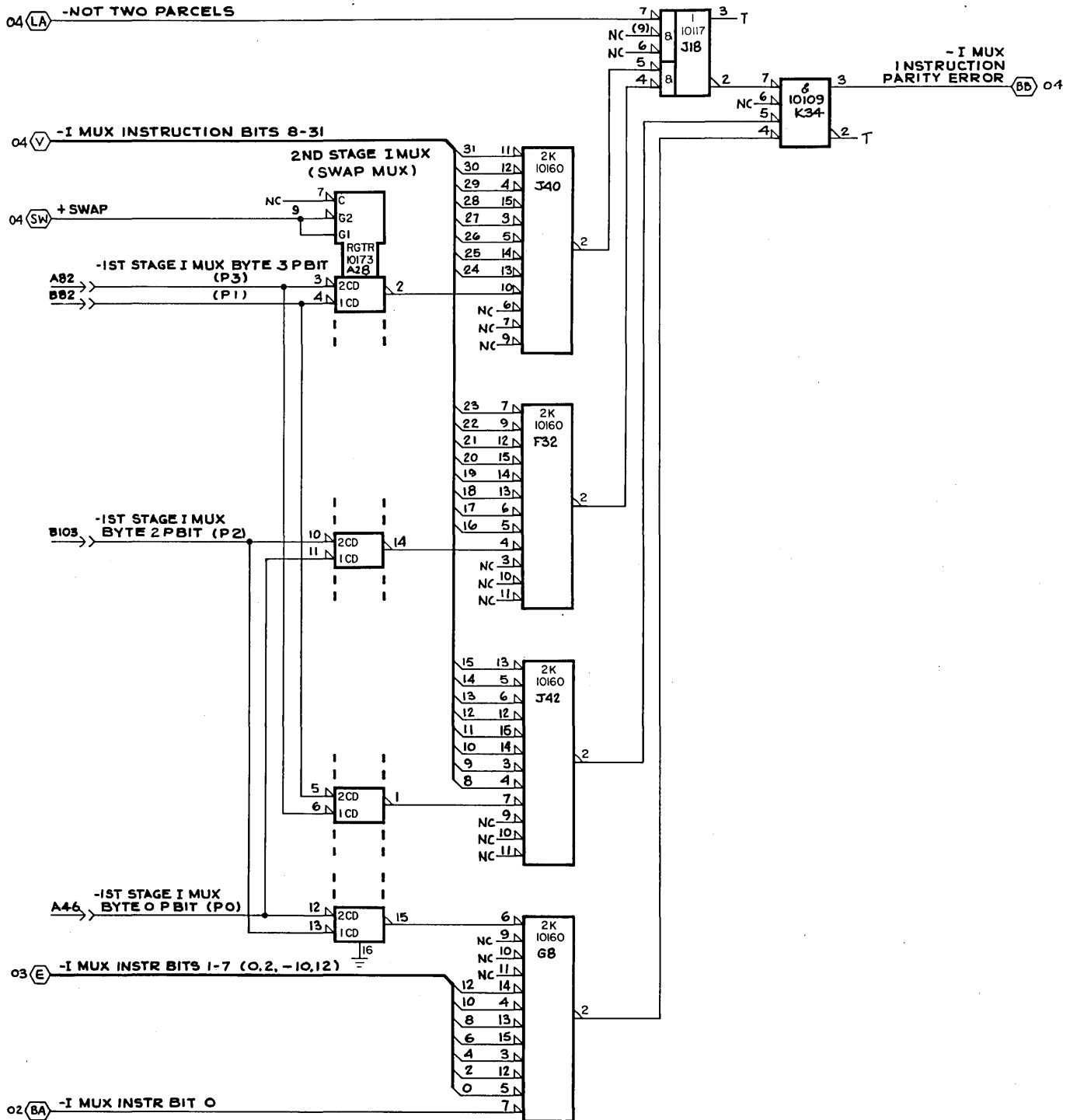


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CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

I MUX INSTRUCTION PARITY CHECKER  
MODULE ASSY - Z10 PAK  
TYPE 8THO

CODE IDENT.  
34570

DWG. NO.

SHEET 12

REV  
A

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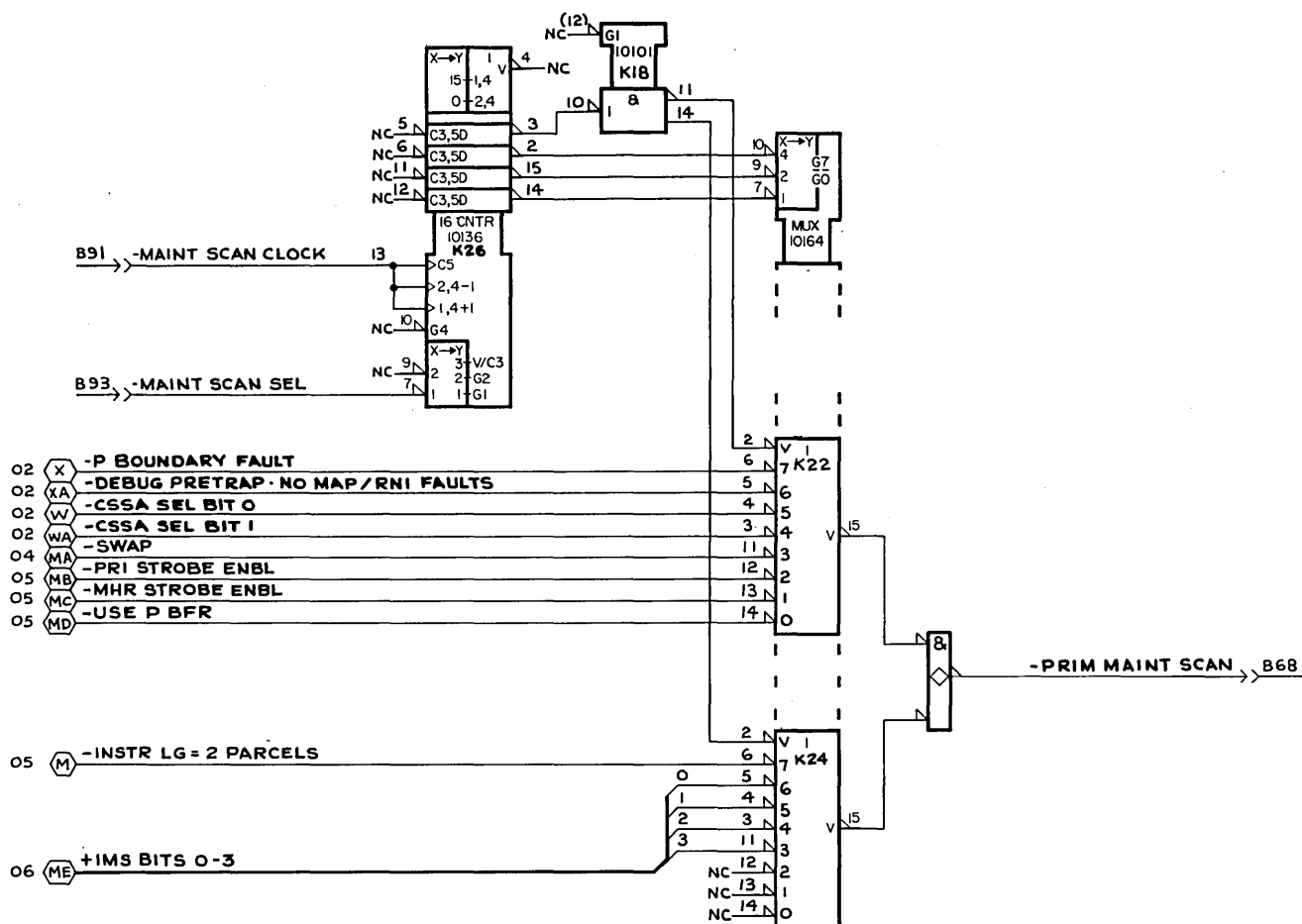
4

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1

## MAINTENANCE SCAN



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

MAINT SCAN FOR TH

MODULE ASSY - Z10PAK  
TYPE 8THOCODE IDENT.  
34570

C

DWG. NO.

SHEET 13

REV  
A

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## IMMEDIATE SELECT ROMS FOR 8THO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
- MOST SIGNIFICANT BIT AT TOP OF SYMBOL
- LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 G14 19266825  
 2 G16 19266826  
 3 G22 19266827  
 4 G20 19266828  
 5 G18 19266829

## ADDR CONTENTS

## ADDR CONTENTS

## ADDR CONTENTS

## ADDR CONTENTS

00 AB880  
 01 AA881  
 02 AA091  
 03 FD8C1  
 04 BDAC1  
 05 AD801  
 06 AB081  
 07 ADD80  
 08 AA080  
 09 A90A1  
 0A 00080  
 0B 54880  
 0C 54883  
 0D AB885  
 0E AB889  
 0F AB880  
 10 AB880  
 11 AA881  
 12 AA091  
 13 FD8C1  
 14 BDAC1  
 15 AD801  
 16 AB081  
 17 ADD80  
 18 AA080  
 19 A90A1  
 1A 00080  
 1B 54880  
 1C 54883  
 1D AB885  
 1E AB889  
 1F AB880  
 20 AB880  
 21 AA881  
 22 AA091  
 23 FD8C1  
 24 BDAC1  
 25 AD801  
 26 AB081  
 27 ADD80  
 28 AA080  
 29 A90A1  
 2A 00080  
 2B 54880  
 2C 54883  
 2D AB885  
 2E AB889  
 2F AB880  
 30 AB880  
 31 AA881  
 32 AA091  
 33 FD8C1  
 34 BDAC1  
 35 AD801  
 36 AB081  
 37 ADD80  
 38 AA080  
 39 A90A1  
 3A 00080  
 3B 54880  
 3C 54883  
 3D AB885  
 3E AB889  
 3F AB880

40 AB880  
 41 AA881  
 42 AA091  
 43 FD8C1  
 44 BDAC1  
 45 AD801  
 46 AB081  
 47 ADD80  
 48 AA080  
 49 A90A1  
 4A 00080  
 4B 54880  
 4C 54883  
 4D AB885  
 4E AB889  
 4F AB880  
 50 AB880  
 51 AA881  
 52 AA091  
 53 FD8C1  
 54 BDAC1  
 55 AD801  
 56 AB081  
 57 ADD80  
 58 AA080  
 59 A90A1  
 5A 00080  
 5B 54880  
 5C 54883  
 5D AB885  
 5E AB889  
 5F AB880  
 60 AB880  
 61 AA881  
 62 AA091  
 63 FD8C1  
 64 BDAC1  
 65 AD801  
 66 AB081  
 67 ADD80  
 68 AA080  
 69 A90A1  
 6A 00080  
 6B 54880  
 6C 54883  
 6D AB885  
 6E AB889  
 6F AB880  
 70 AB880  
 71 AA881  
 72 AA091  
 73 FD8C1  
 74 BDAC1  
 75 AD801  
 76 AB081  
 77 ADD80  
 78 AA080  
 79 A90A1  
 7A 00080  
 7B 54880  
 7C 54883  
 7D AB885  
 7E AB889  
 7F AB880

80 AB880  
 81 AA881  
 82 AA091  
 83 FD8C1  
 84 BDAC1  
 85 AD801  
 86 AB081  
 87 ADD80  
 88 AA080  
 89 A90A1  
 8A 00080  
 8B 54880  
 8C 54883  
 8D AB885  
 8E AB889  
 8F AB880  
 90 AB880  
 91 AA881  
 92 AA091  
 93 FD8C1  
 94 BDAC1  
 95 AD801  
 96 AB081  
 97 ADD80  
 98 AA080  
 99 A90A1  
 9A 00080  
 9B 54880  
 9C 54883  
 9D AB885  
 9E AB889  
 9F AB880  
 A0 AB880  
 A1 AA881  
 A2 AA091  
 A3 FD8C1  
 A4 BDAC1  
 A5 AD801  
 A6 AB081  
 A7 ADD80  
 A8 AA080  
 A9 A90A1  
 AA 00080  
 AB 54880  
 AC 54883  
 AD AB885  
 AE AB889  
 AF AB880  
 B0 AB880  
 B1 AA881  
 B2 AA091  
 B3 FD8C1  
 B4 BDAC1  
 B5 AD801  
 B6 AB081  
 B7 ADD80  
 B8 AA080  
 B9 A90A1  
 BA 00080  
 BB 54880  
 BC 54883  
 BD AB885  
 BE AB889  
 BF AB880

C0 AB880  
 C1 AA881  
 C2 AA091  
 C3 FD8C1  
 C4 BDAC1  
 C5 AD801  
 C6 AB081  
 C7 ADD80  
 C8 AA080  
 C9 A90A1  
 CA 00080  
 CB 54880  
 CC 54883  
 CD AB885  
 CE AB889  
 CF AB880  
 D0 AB880  
 D1 AA881  
 D2 AA091  
 D3 FD8C1  
 D4 BDAC1  
 D5 AD801  
 D6 AB081  
 D7 ADD80  
 D8 AA080  
 D9 A90A1  
 DA 00080  
 DB 54880  
 DC 54883  
 DD AB885  
 DE AB889  
 DF AB880  
 E0 AB880  
 E1 AA881  
 E2 AA091  
 E3 FD8C1  
 E4 BDAC1  
 E5 AD801  
 E6 AB081  
 E7 ADD80  
 E8 AA080  
 E9 A90A1  
 EA 00080  
 EB 54880  
 EC 54883  
 ED AB885  
 EE AB889  
 EF AB880  
 F0 AB880  
 F1 AA881  
 F2 AA091  
 F3 FD8C1  
 F4 BDAC1  
 F5 AD801  
 F6 AB081  
 F7 ADD80  
 F8 AA080  
 F9 A90A1  
 FA 00080  
 FB 54880  
 FC 54883  
 FD AB885  
 FE AB889  
 FF AB880

4

3

2

1

## CYBER ADDRESS CONVERT ROMS FOR 8THO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 F08 19266955  
2 F08 19266956  
3 E10 19266957  
4 F10 19266958

## ADDR CONTENTS

00 8F8F  
01 8F8F  
02 8F8F  
03 8F8F  
04 4E4E  
05 CE4E  
06 CE4E  
07 4E4E  
08 0D0D  
09 0D0D  
0A 0D0D  
0B 0D0D  
0C CC4C  
0D 4CC4  
0E 4CC4  
0F CC4C  
10 0808  
11 0808  
12 0808  
13 0808  
14 8A8A  
15 8A8A  
16 8A8A  
17 8A8A  
18 8989  
19 8989  
1A 8989  
1B 8989  
1C 0808  
1D 0808  
1E 0808  
1F 0808  
20 0707  
21 0707  
22 0707  
23 0D07  
24 8686  
25 8686  
26 8686  
27 8C86  
28 8585  
29 8585  
2A 8585  
2B 8585  
2C 0404  
2D 0404  
2E 0404  
2F 0404  
30 8383  
31 8383  
32 8383  
33 8383  
34 0202  
35 0202  
36 0202  
37 0101  
38 0101  
39 0101  
3A 0101  
3B 0101  
3C 8080  
3D 8080  
3E 8080  
3F 8080

## ADDR CONTENTS

40 1F1F  
41 1717  
42 1717  
43 1F17  
44 9E9E  
45 9E9E  
46 9E9E  
47 9E9E  
48 909D  
49 9595  
4A 9595  
4B 9095  
4C 1C1C  
4D 1414  
4E 1414  
4F 1C14  
50 9898  
51 9393  
52 9393  
53 9893  
54 1A1A  
55 1212  
56 1212  
57 1A12  
58 1919  
59 1111  
5A 1111  
5B 1911  
5C 9898  
5D 9090  
5E 9090  
5F 9890  
60 9797  
61 9797  
62 9797  
63 9797  
64 1A1B  
65 1819  
66 1616  
67 1616  
68 1515  
69 1515  
6A 1515  
6B 1515  
6C 9494  
6D 9494  
6E 9494  
6F 9494  
70 1313  
71 1313  
72 1313  
73 1313  
74 9292  
75 9292  
76 9292  
77 9292  
78 9191  
79 9191  
7A 9191  
7B 9191  
7C 1010  
7D 1010  
7E 1010  
7F 1010

## ADDR CONTENTS

80 2F2F  
81 2F2F  
82 2F2F  
83 2F2F  
84 AEAE  
85 AEAE  
86 AEAE  
87 AEAE  
88 ADAD  
89 ADAD  
8A ADAD  
8B ADAD  
8C 2C2C  
8D 2C2C  
8E 2C2C  
8F 2C2C  
90 ABAB  
91 ABAB  
92 ABAB  
93 ABAB  
94 2A2A  
95 2A2A  
96 2A2A  
97 2A2A  
98 2929  
99 2929  
9A F979  
9B 79F9  
9C ABAB  
9D ABAB  
9E ABAB  
9F ABAB  
A0 A707  
A1 D707  
A2 D707  
A3 5757  
A4 2656  
A5 5656  
A6 5656  
A7 D6D6  
A8 2555  
A9 5555  
AA 5555  
AB D5D5  
AC A4D4  
AD D4D4  
AE D4D4  
AF 5454  
B0 2353  
B1 5353  
B2 5353  
B3 D3D3  
B4 A2D2  
B5 D2D2  
B6 D2D2  
B7 5252  
B8 A1D1  
B9 D1D1  
BA D1D1  
BB 5151  
BC 2050  
BD 5050  
BE 5050  
BF D0D0

## ADDR CONTENTS

C0 BFBF  
C1 BFBF  
C2 BFBF  
C3 BFBF  
C4 3E3E  
C5 3E3E  
C6 3E3E  
C7 3E3E  
C8 3D3D  
C9 3D3D  
CA 3D3D  
CB 3D3D  
CC BCBC  
CD BCBC  
CE BCBC  
CF BCBC  
D0 3838  
D1 3838  
D2 3838  
D3 3838  
D4 BABA  
D5 BABA  
D6 BABA  
D7 BABA  
D8 7989  
D9 8989  
DA 8989  
DB 8989  
DC F838  
DD 3838  
DE 3838  
DF 3838  
E0 3737  
E1 3737  
E2 3737  
E3 3737  
E4 B686  
E5 B686  
E6 B686  
E7 B686  
E8 B585  
E9 B585  
EA B585  
EB B585  
EC 3434  
ED 3434  
EE 3434  
EF 3434  
F0 BEBF  
F1 BCBF  
F2 BABB  
F3 B8B9  
F4 3232  
F5 3232  
F6 3232  
F7 3232  
F8 3637  
F9 3435  
FA 3233  
FB 3031  
FC B0B0  
FD B0B0  
FE B0B0  
FF B0B0

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
  
CONTROL  
DATA

CYBER ADDRESS CONVERT ROMS  
FOR 8THO  
MODULE ASSY - 210 PAK  
TYPE 8THO

CODE IDENT.	34570	C	DIAG. NO.		REV	A
			SHEET	15		

CC

C

C

C

CC



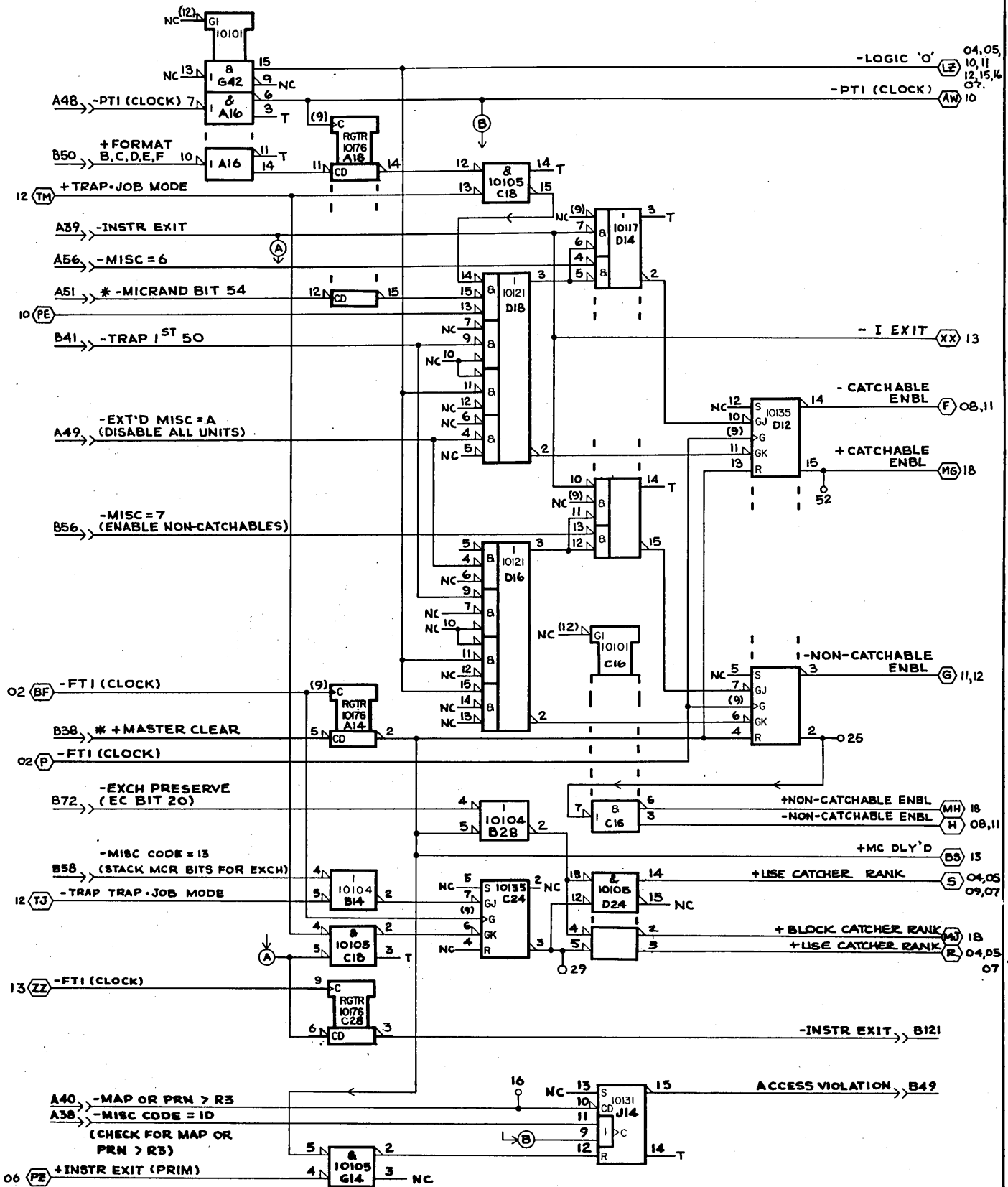


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NOTE: \* SHORT AND DO NOT  
TERMINATE.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

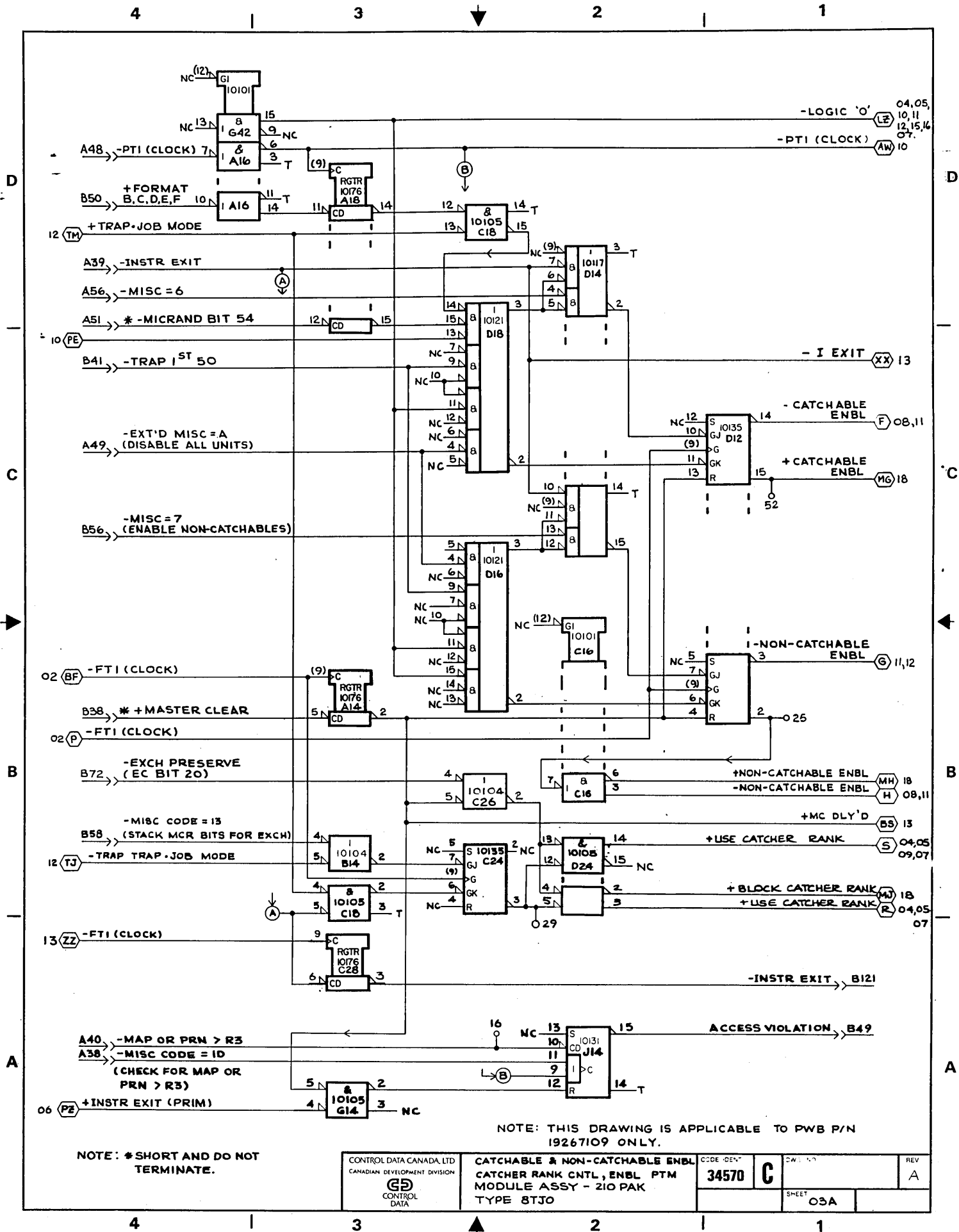
CATCHABLE & NON-CATCHABLE ENBL  
CATCHER RANK CNTL, ENBL PTM  
MODULE ASSY - 210 PAK  
TYPE 8TJO

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET  
03



4

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1

02 (CE) -MCR STROBE (CLOCK)

02 (A) -WD BITS 1-7

02 (P) -FT1 (CLOCK)

02 (K) -LOAD MCR

B3 -SHORT  
WARNING (MAC)

03 (S) +USE CATCHER RANK

03 (R) +USE CATCHER RANK

B19 -BIT DESC  
LEN > 63  
A20 -MISC CODE = 8  
(CHECK BIT  
DESC)A3 -ADRS SPEC  
ERROR

A80 -180 EXCH

B112 +PP ACCEPT

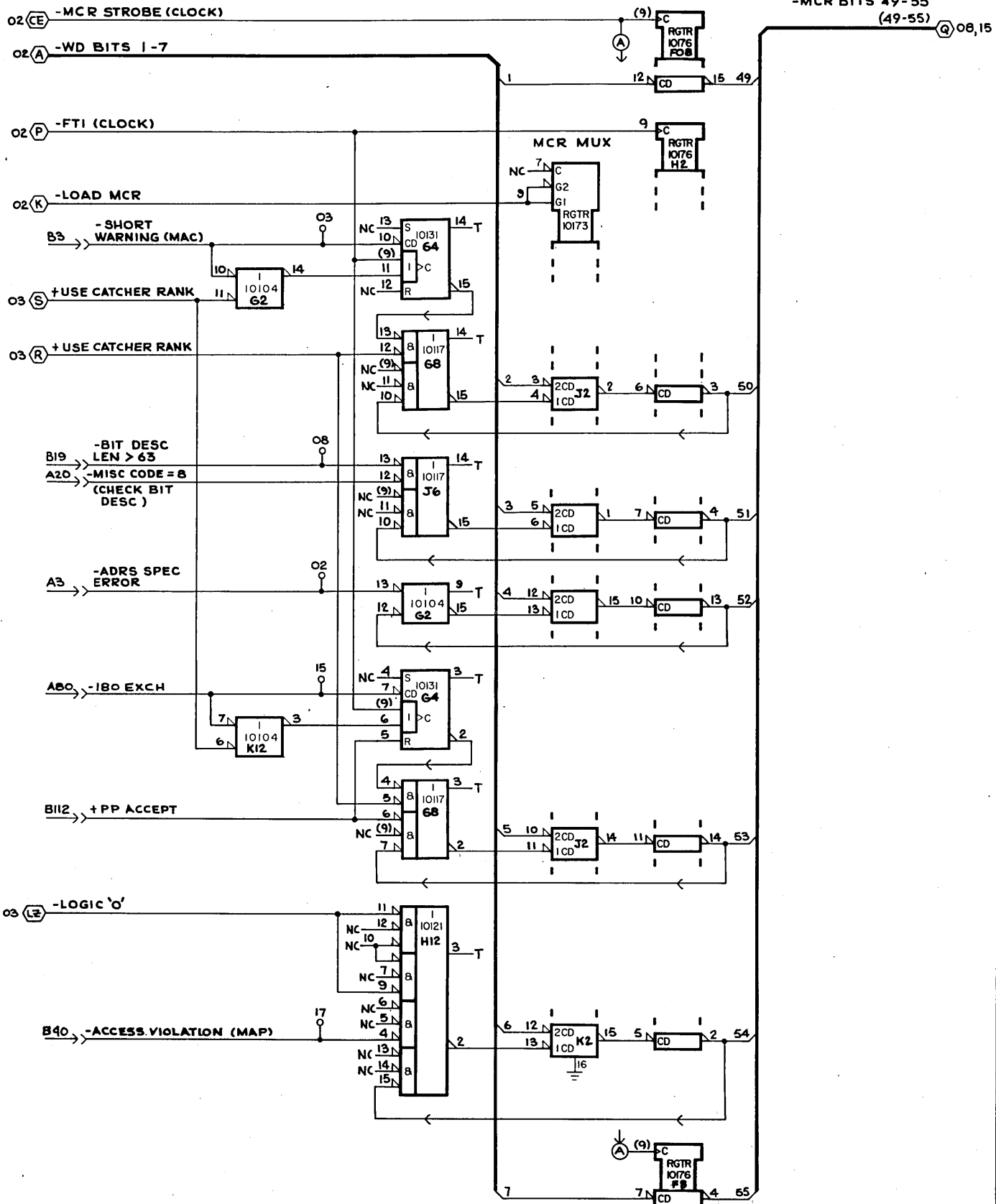
03 (LE) -LOGIC '0'

B40 -ACCESS.VIOLATION (MAP)

MON CONDITION RGTR

-MCR BITS 49-55  
(49-55)

Q 08,15



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

MCR BITS 48-55

MODULE ASSY - 210 PAK  
TYPE 8T30

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

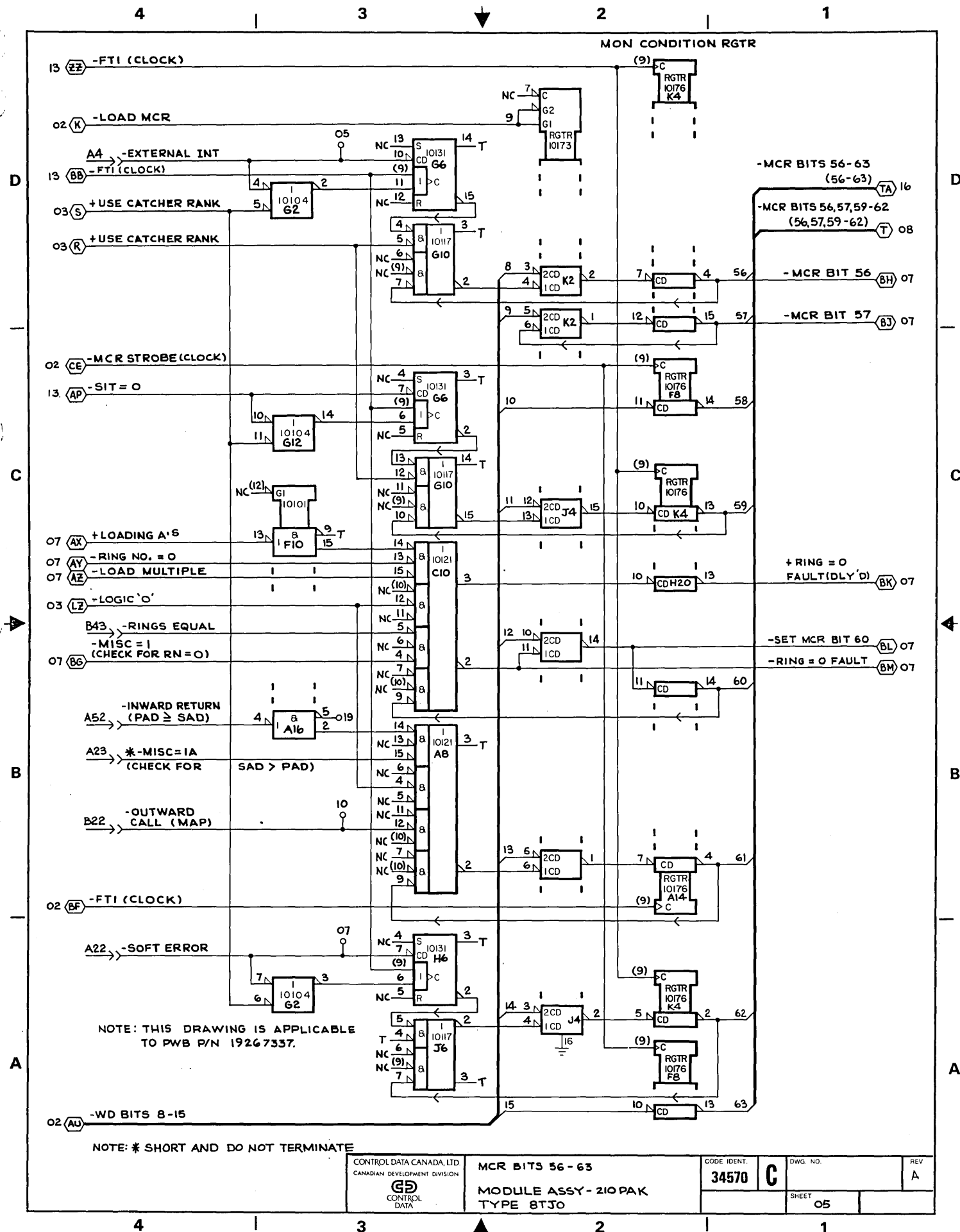
04

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## MON CONDITION RGTR

13 (Z) -FTI (CLOCK)

02 (K) -LOAD MCR

A4 -EXTERNAL INT

13 (B) -FTI (CLOCK)

03 (S) +USE CATCHER RANK

03 (R) +USE CATCHER RANK

02 (C) -MCR STROBE (CLOCK)

13 (A) -SIT = 0

07 (A) +LOADING A'S

07 (Y) -RING NO. = 0

07 (Z) -LOAD MULTIPLE

03 (L) -LOGIC '0'

B43 -RINGS EQUAL

-MISC = 1  
(CHECK FOR RN = 0)07 (B) -INWARD RETURN  
(PAD ≥ SAD)A23 \*-MISC = 1A  
(CHECK FOR

SAD &gt; PAD)

B22 -OUTWARD  
CALL (MAP)

02 (F) -FTI (CLOCK)

A22 -SOFT ERROR

NOTE: THIS DRAWING IS APPLICABLE  
TO PWB P/N 19267109.

02 (A) -WD BITS 8-15

NOTE: \* SHORT AND DO NOT TERMINATE

CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION

MCR BITS 56-63

MODULE ASSY - 210PAK  
TYPE 8T30

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

05A

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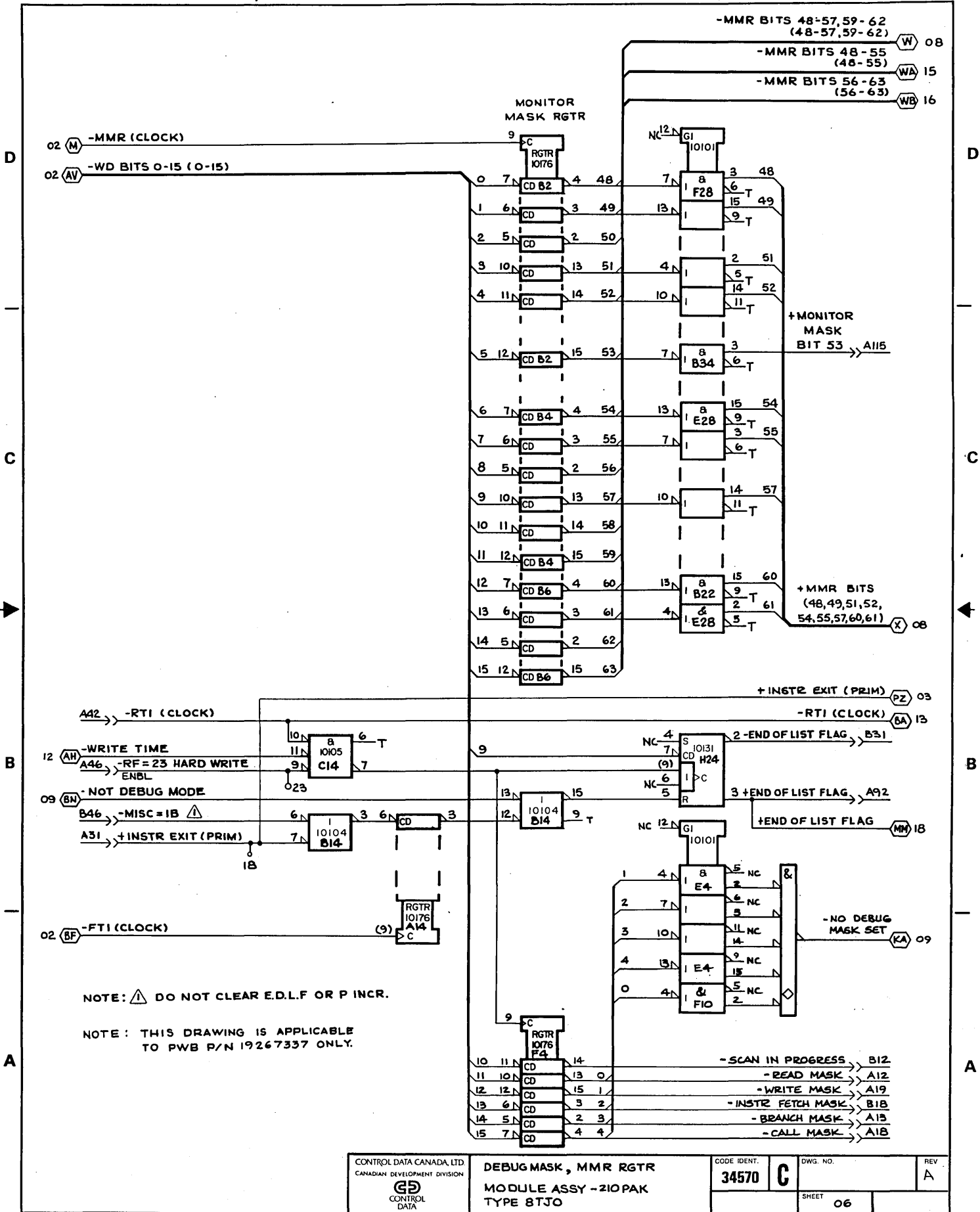
1

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CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

DEBUG MASK, MMR RGTR  
MODULE ASSY -210PAK  
TYPE 8TJO

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET  
06

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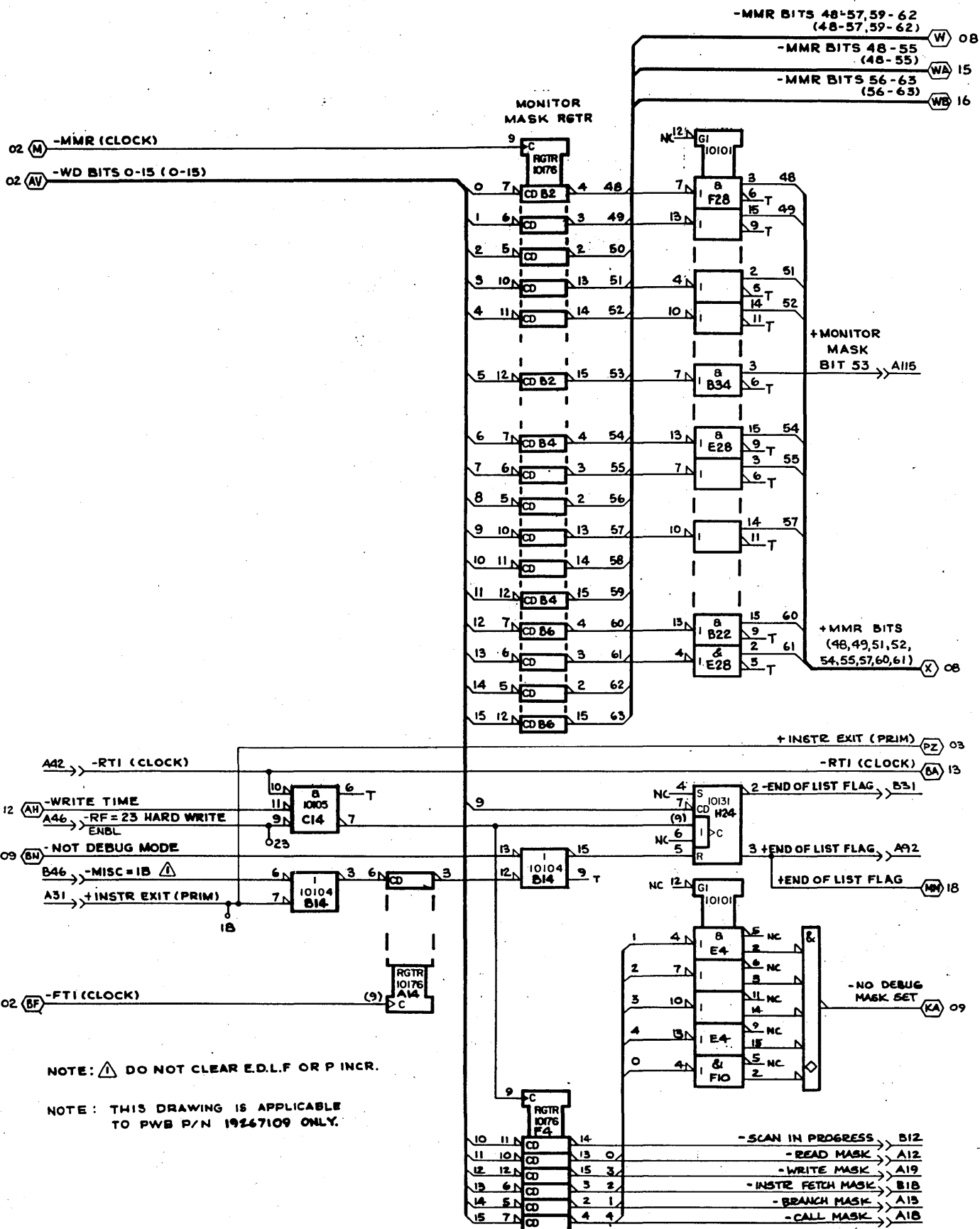
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CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

DEBUG MASK, MMR RGTR  
MODULE ASSY - Z10PAK  
TYPE BTJO

CODE IDENT.

34570

DWG. NO.

C

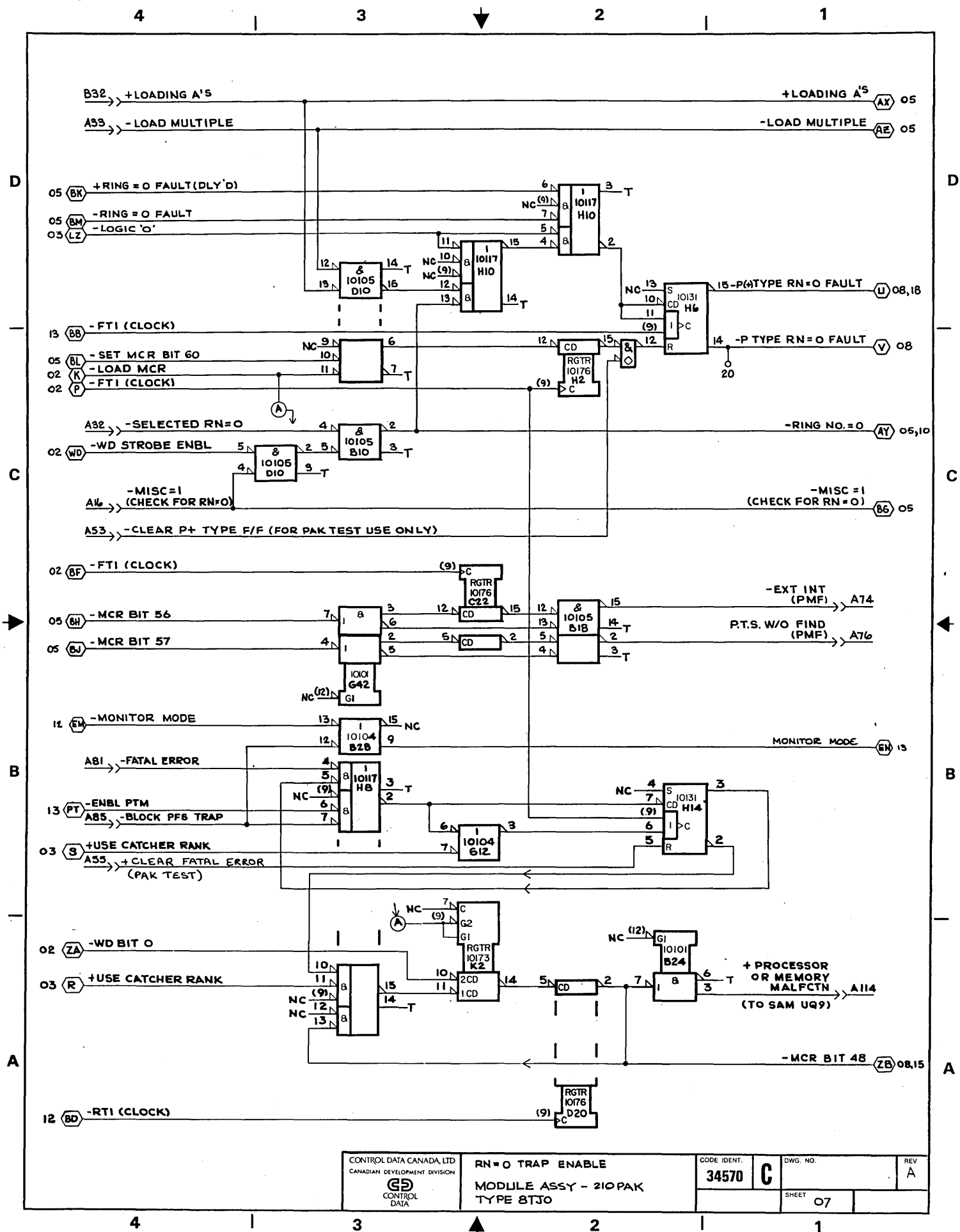
REV

A

SHEET

06A





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06 (X) +MMR BITS 48,49,51,52,54,55,57,60,61

05 (T) -MCR BITS 56,57,59-62

06 (W) -MMR BITS 48-57,59-62

03 (H) -NON-CATCHABLE ENBL

07 (ZB) -MCR BIT 48

04 (Q) -MCR BITS 49-55

03 (F) -CATCHABLE ENBL

07 (V) -P TYPE  
RN=O FAULT07 (U) -P(+) TYPE  
RN=O FAULTMCR  
DCDR

(10) 2 -ETH (MCR) (Y) 12

3 +ETH (MCR) (MK) 18

15 2 -HLT (E) 12

3 +HLT (MP) 18

12 15 -ETS (MCR) (AA) 12

14 +ETS (MCR) (MQ) 18

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATAETH, HLT, ETS  
MODULE ASSY - 210PAK  
TYPE 8TJOCODE IDENT.  
34570

DWG. NO.

C

REV

A

SHEET

08

4

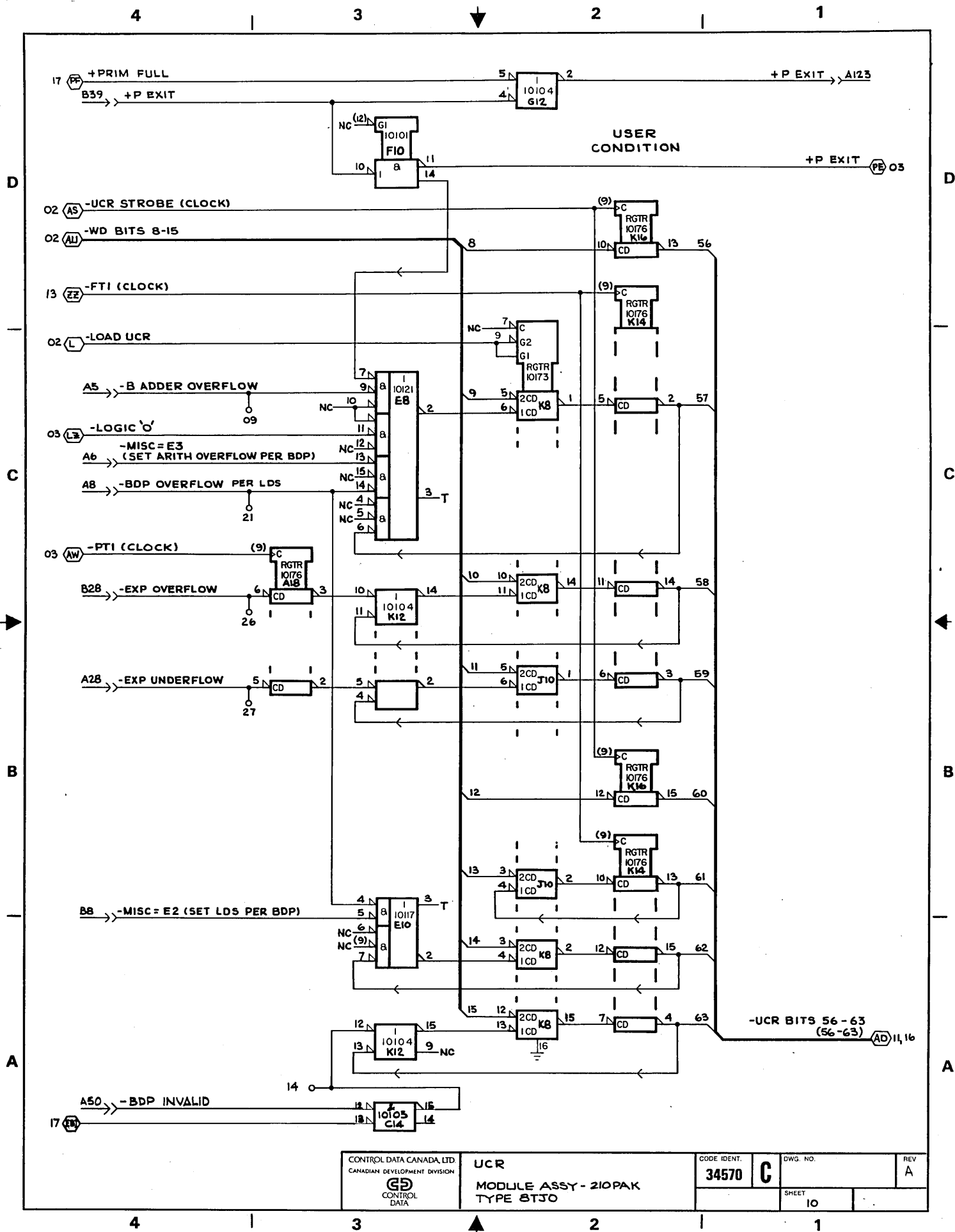
3

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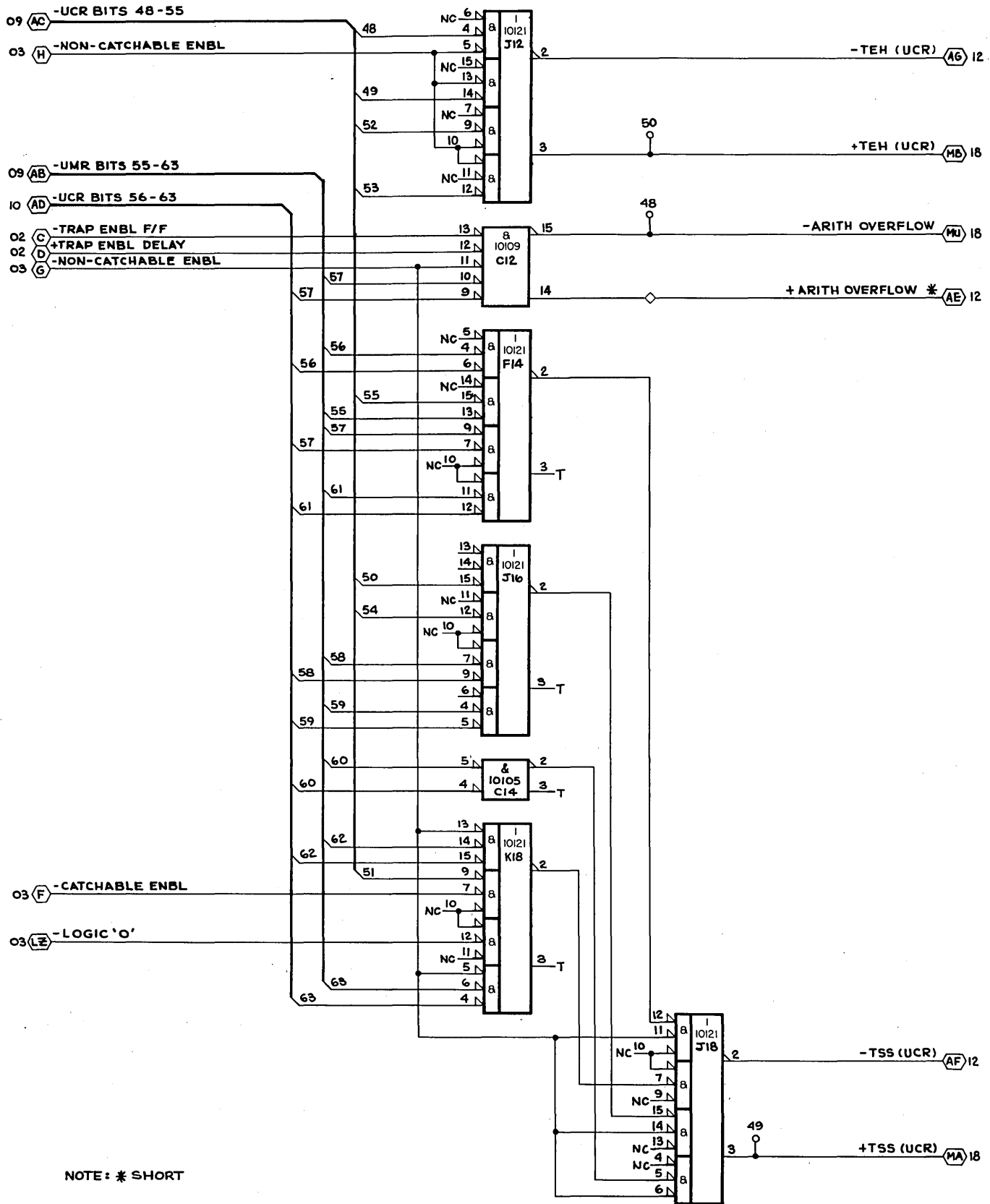


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CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

TSS, TEH, ARITH O'FLOW  
MODULE ASSY - ZIOPAK  
TYPE 8TJO

CODE IDENT:  
34570

DWG. NO.

C

REV  
A

SHEET

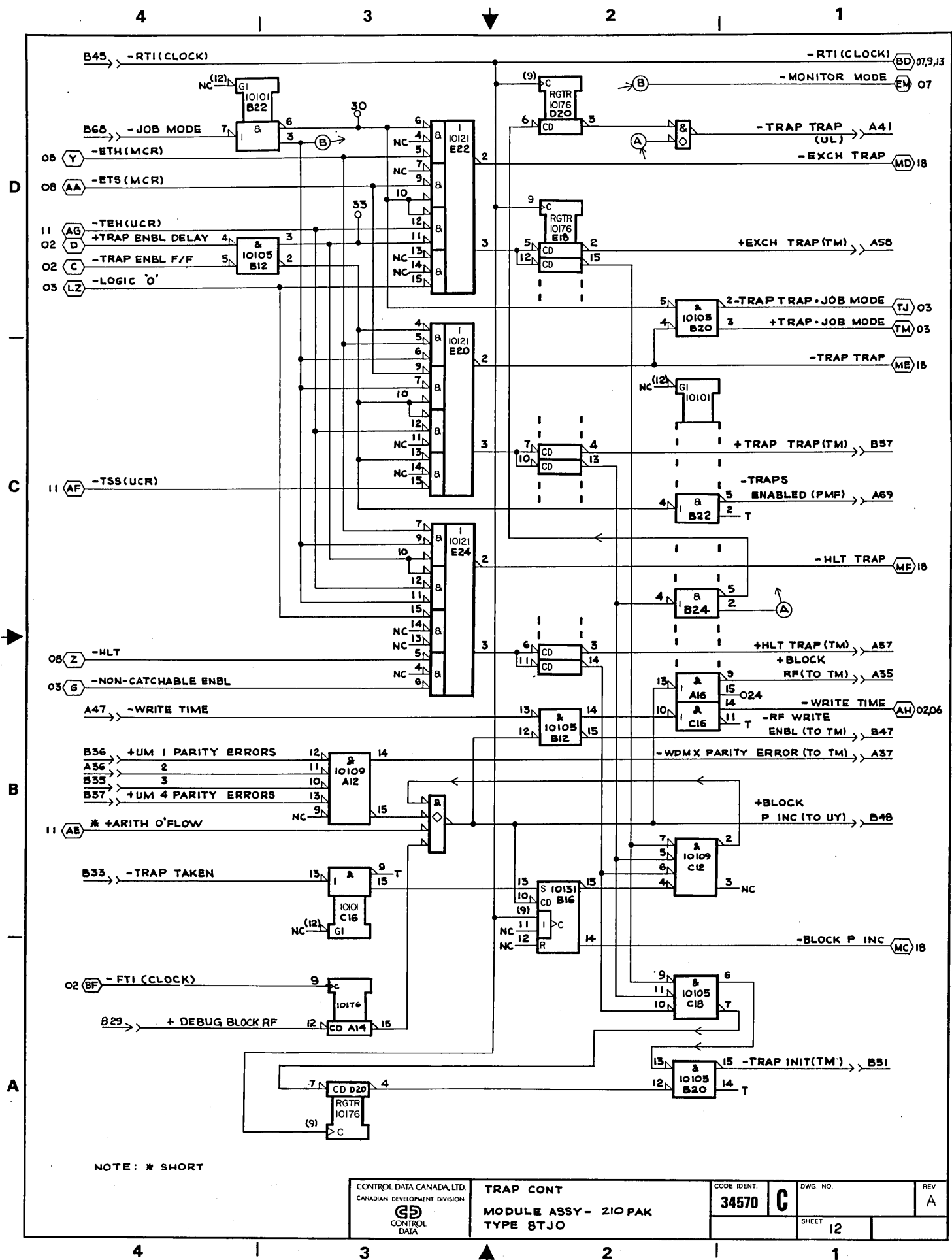
11

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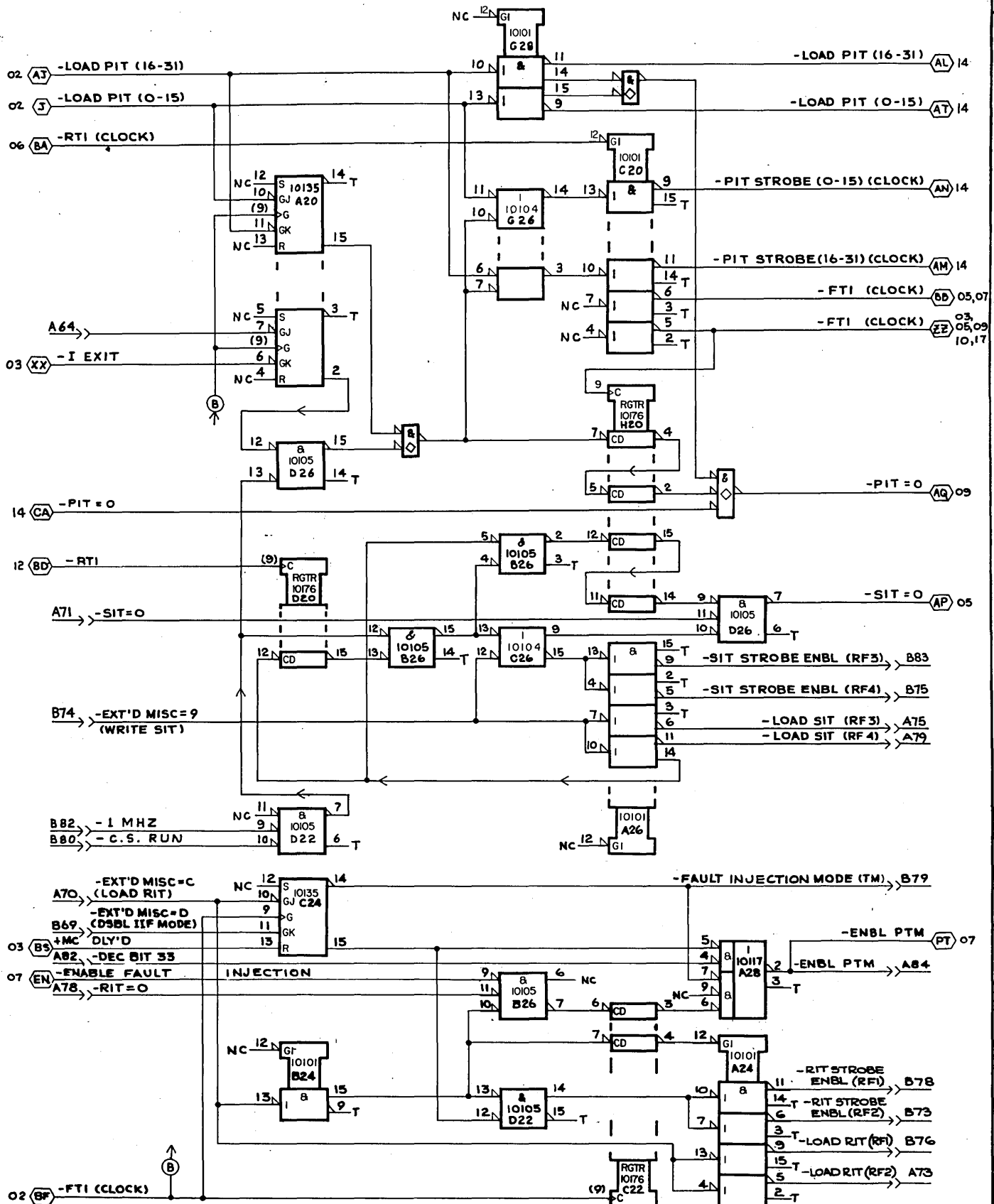


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CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

PRCS INTVL TIMER, SYS INTVL  
TIMER  
MODULE ASSY-210 PAK  
TYPE 8TJO

CODE IDENT.  
34570

DWG. NO.  
C

SHEET  
13

REV  
A



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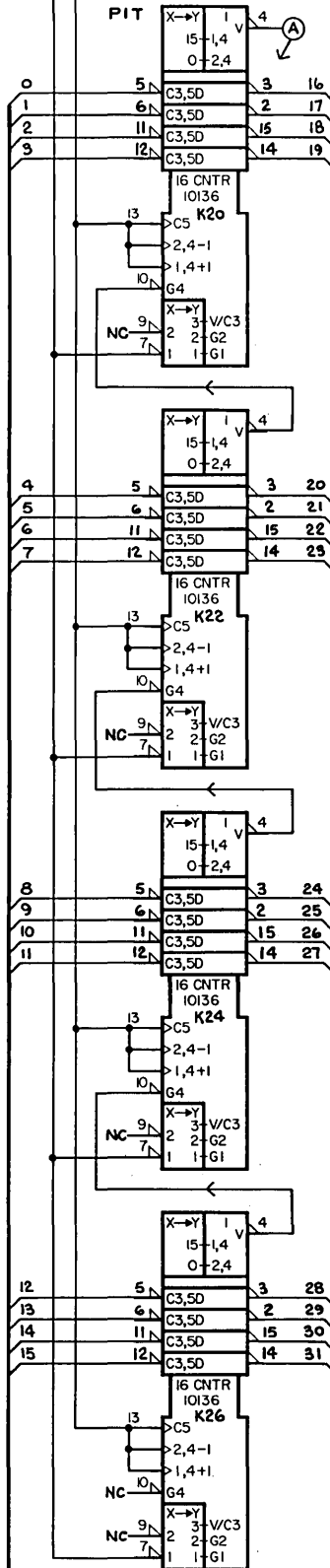
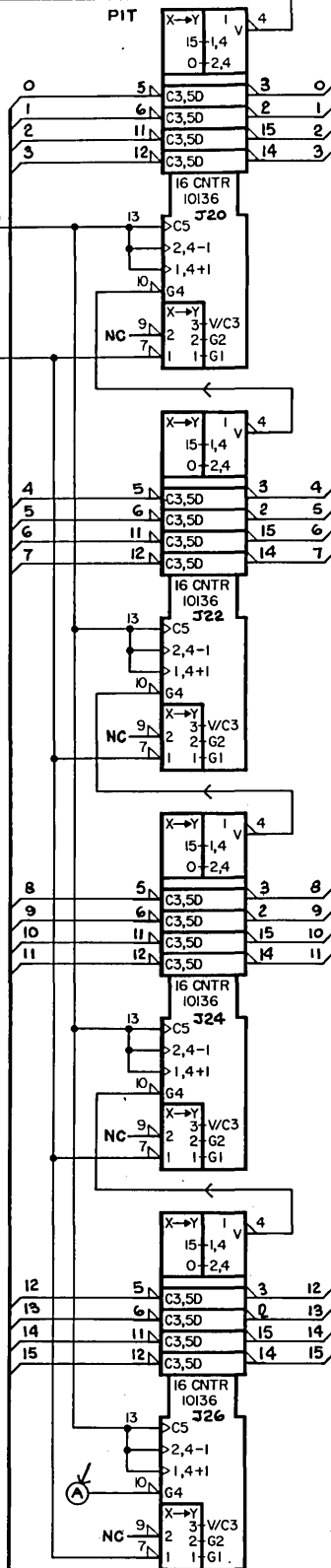
PIT(=O) CA 13

13 AM -PIT STROBE (16-31) (CLOCK)  
 13 AL -LOAD PIT (16-31)

13 AN -PIT STROBE (0-15) (CLOCK)

13 AT -LOAD PIT (0-15)

02 AV -WD BITS 0-15



-PIT BITS 0-7,16-23  
 (0-7,16-23) AR 15  
 -PIT BITS 8-15,24-31  
 (8-15,24-31) RA 16

CONTROL DATA CANADA, LTD.  
 CANADIAN DEVELOPMENT DIVISION  
 CD  
 CONTROL  
 DATA

PRCS INTVL TIMER  
 MODULE ASSY- 210PAK  
 TYPE 8TJO

CODE IDENT.  
 34570

DWG. NO.  
 C

REV  
 A

SHEET  
 14

4

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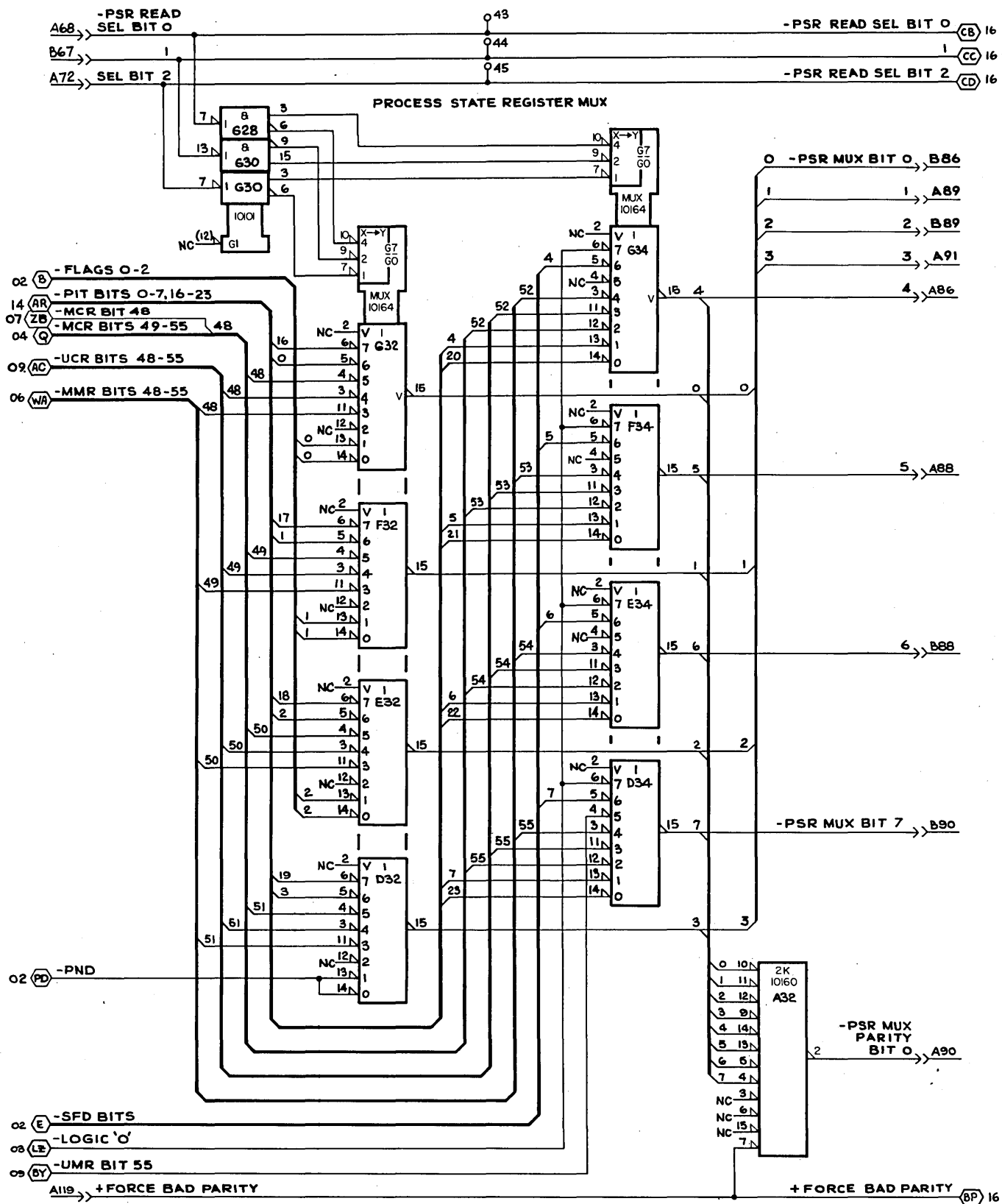
1

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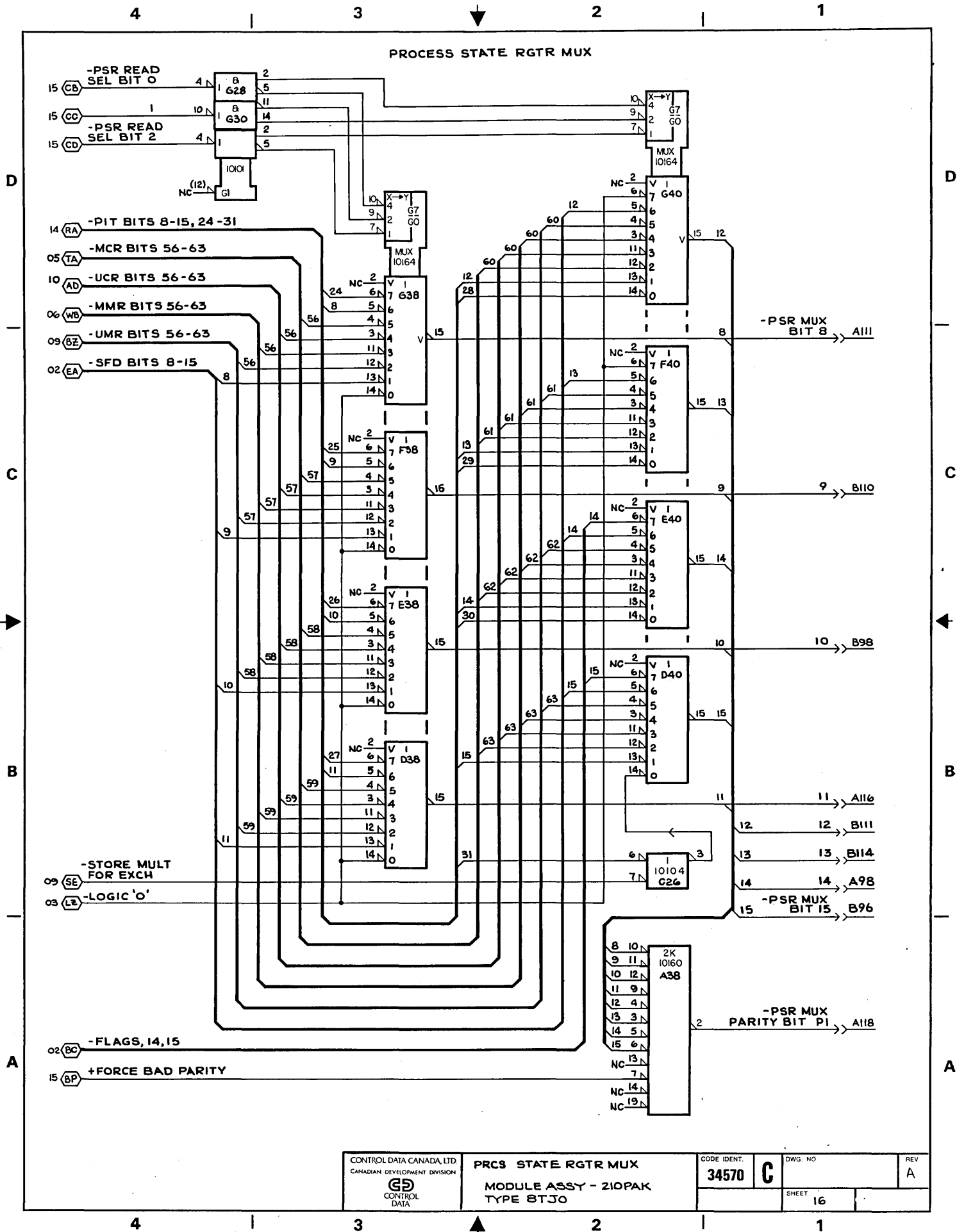


4

3

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1





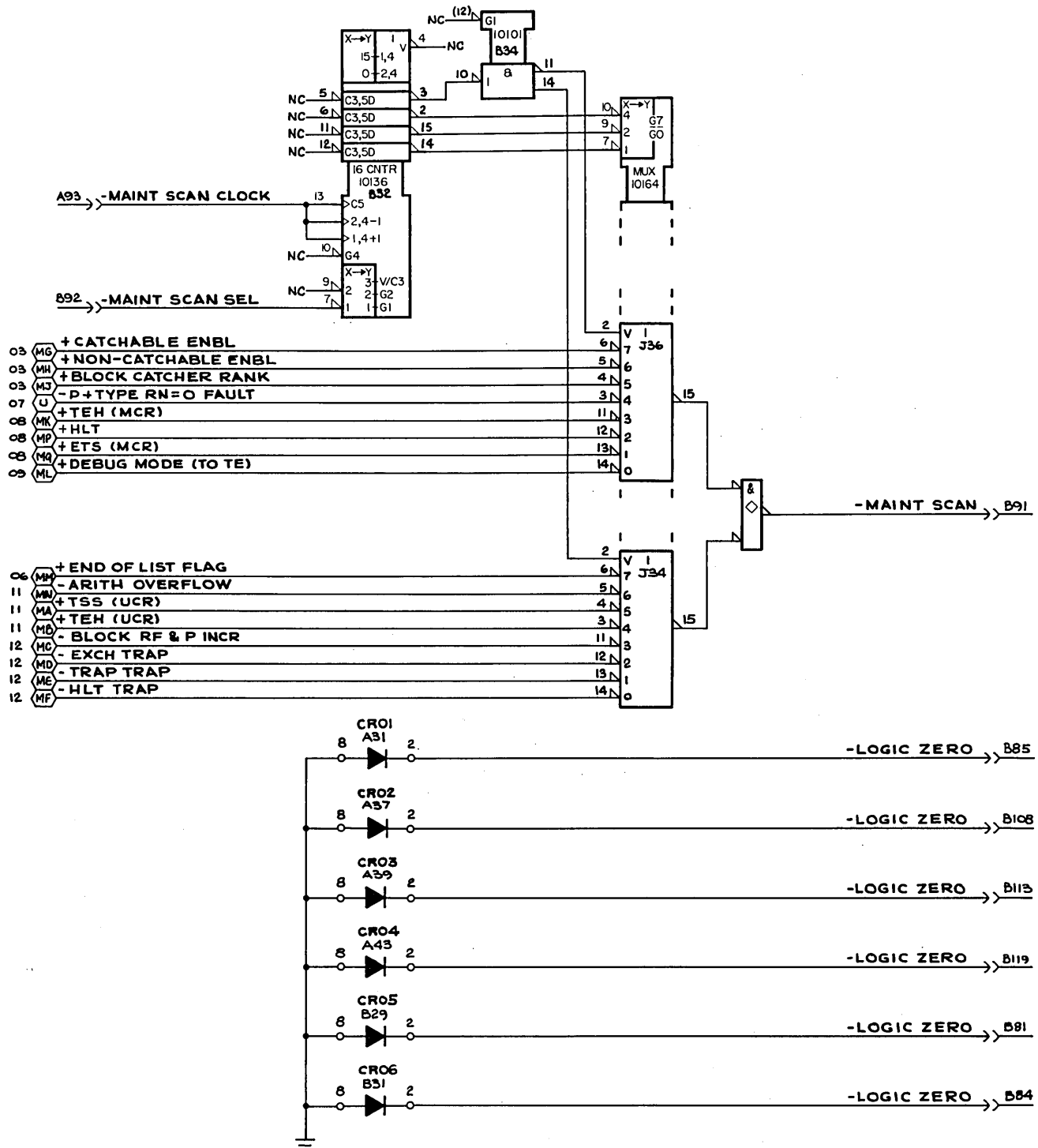
4

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2

1

## MAINT SCAN



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

**MAINT SCAN**  
MODULE ASSY - 210PAK  
TYPE 8TJO

CODE IDENT.  
**34570**

**C**

DWG. NO.

SHEET 18

REV  
**A**

4

3

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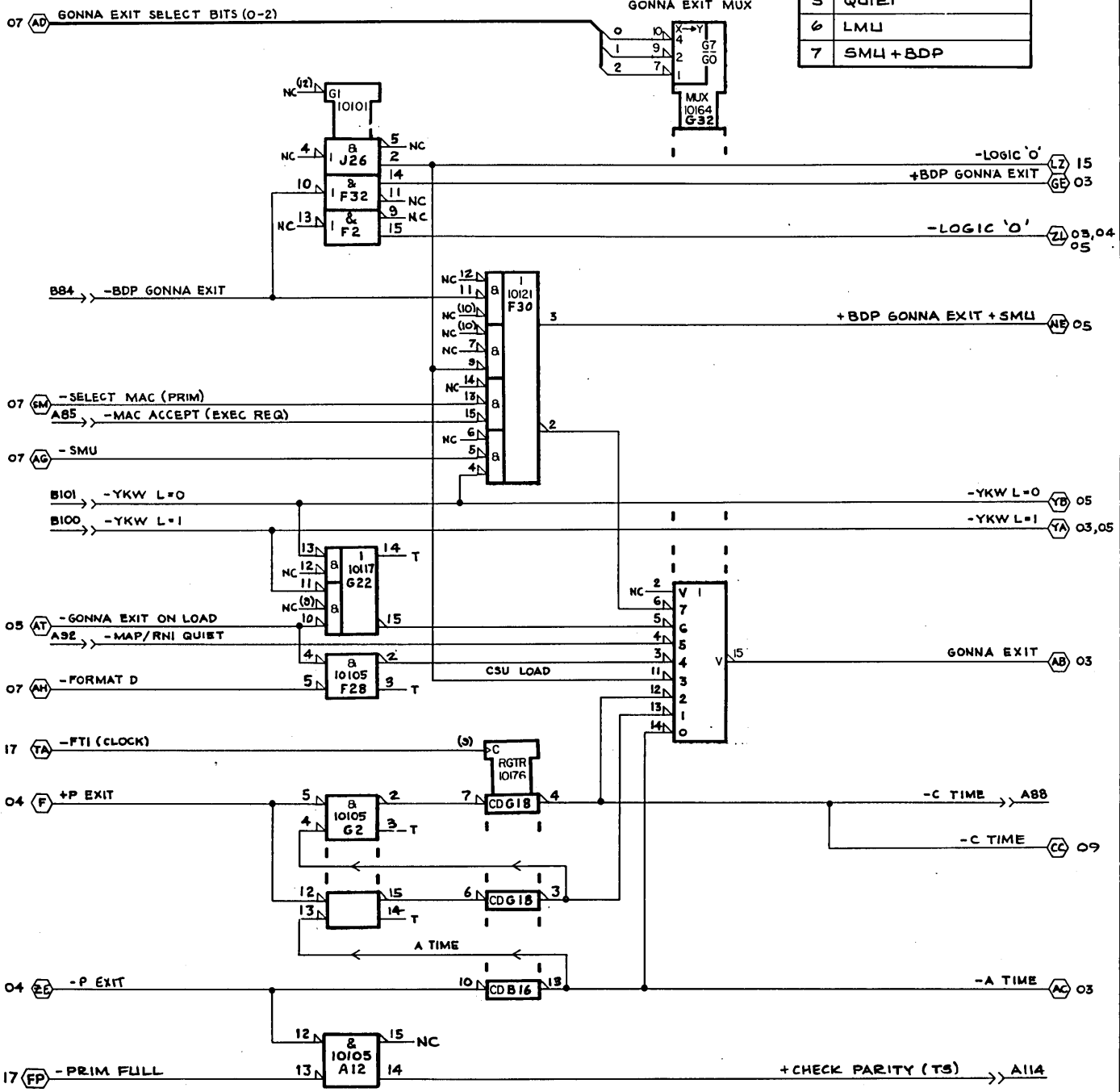
1



EXIT CODES	
0	50 NS
1	100 NS
2	150 NS
3	MAP MT
4	CSU LOAD OR CSU STORE
5	QUIET
6	LMU
7	SMU + BDP

D

D



A

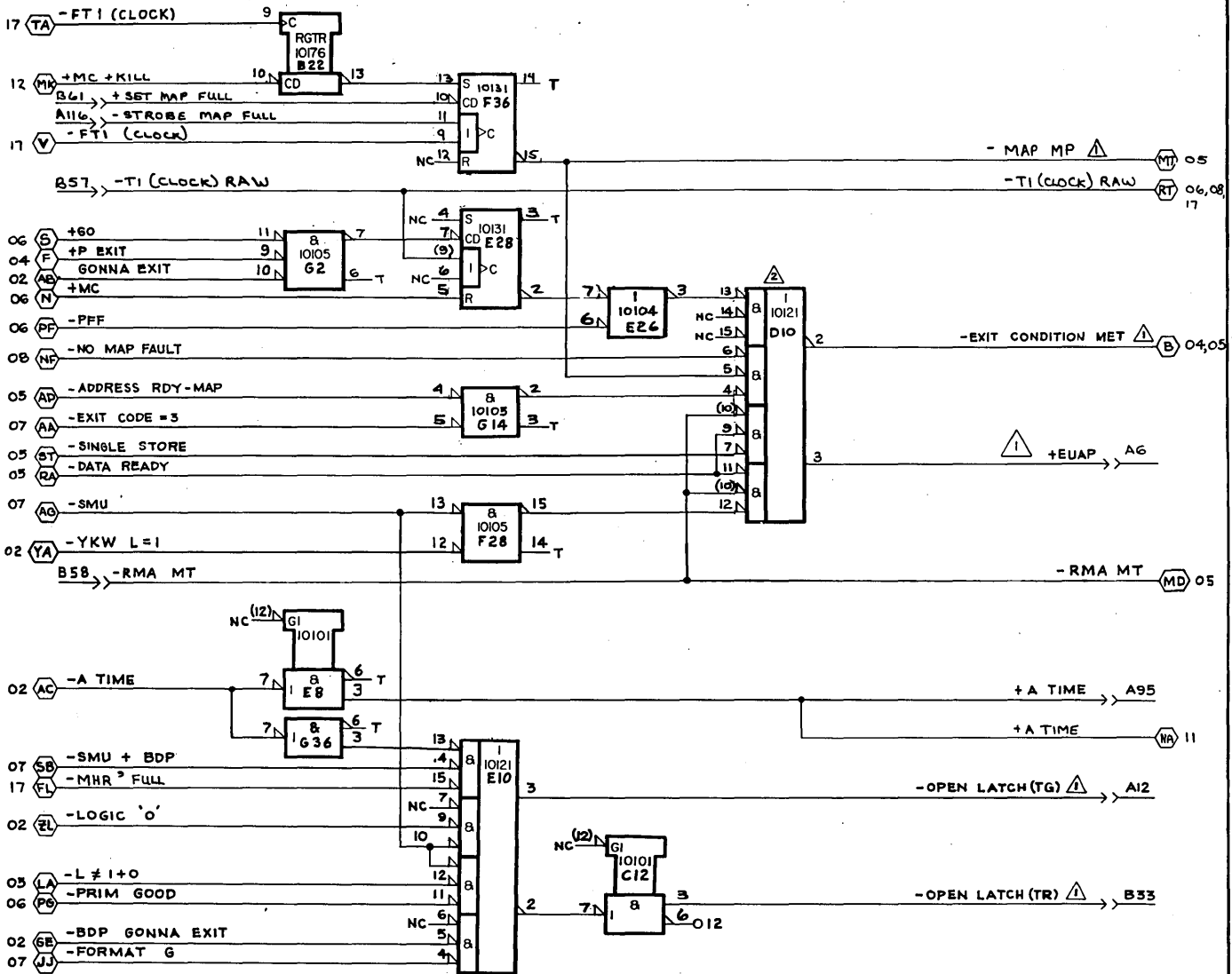
A

4

3

2

1



PM12 AM INPUTS	
0	FF
1	MAP UT STORE
2	CSU STORE
3	MULT STORE

PM12 AB INPUTS	
0	GONNA EXIT
1	SMU L=0
2	SMU L=0
3	OTHERS

NOTE:  $\Delta$  SHORT

$\Delta$  LINES TO AND FROM THIS CHIP MUST BE AS SHORT AS POSSIBLE

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL DATA

ECM, OPEN LATCH  
MODULE ASSEMBLY 210 PAK  
TYPE 8TMO

CODE IDENT.  
**34570**

DWG. NO.

**C**

REV

**B**

SHEET

03



4

3

2

1

D

D

C

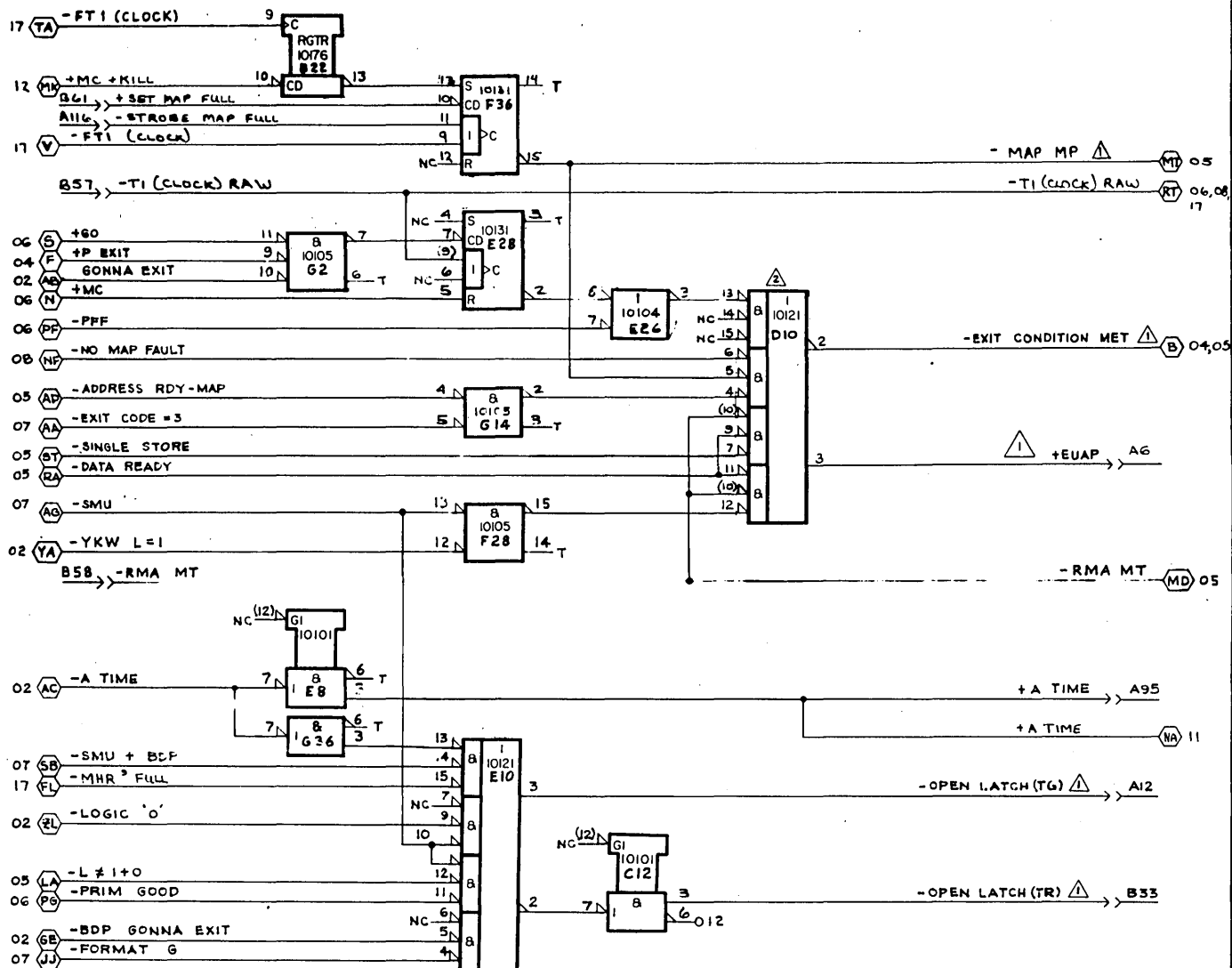
C

B

B

A

A



PM12 AM INPUTS	
0	FF
1	MAP UT STORE
2	CSU STORE
3	MULT STORE

PM12 AB INPUTS	
0	GONNA EXIT
1	SMU L=0
2	SMU L=0
3	OTHERS

NOTE:  $\Delta$  SHORT

$\Delta$  LINES TO AND FROM THIS CHIP MUST BE AS SHORT AS POSSIBLE

THIS DRAWING IS APPLICABLE TO PWB 19268132 ONLY.

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

ECM, OPEN LATCH  
MODULE ASSEMBLY 210 FAK  
TYPE 8TMJ

CODE IDENT  
34570

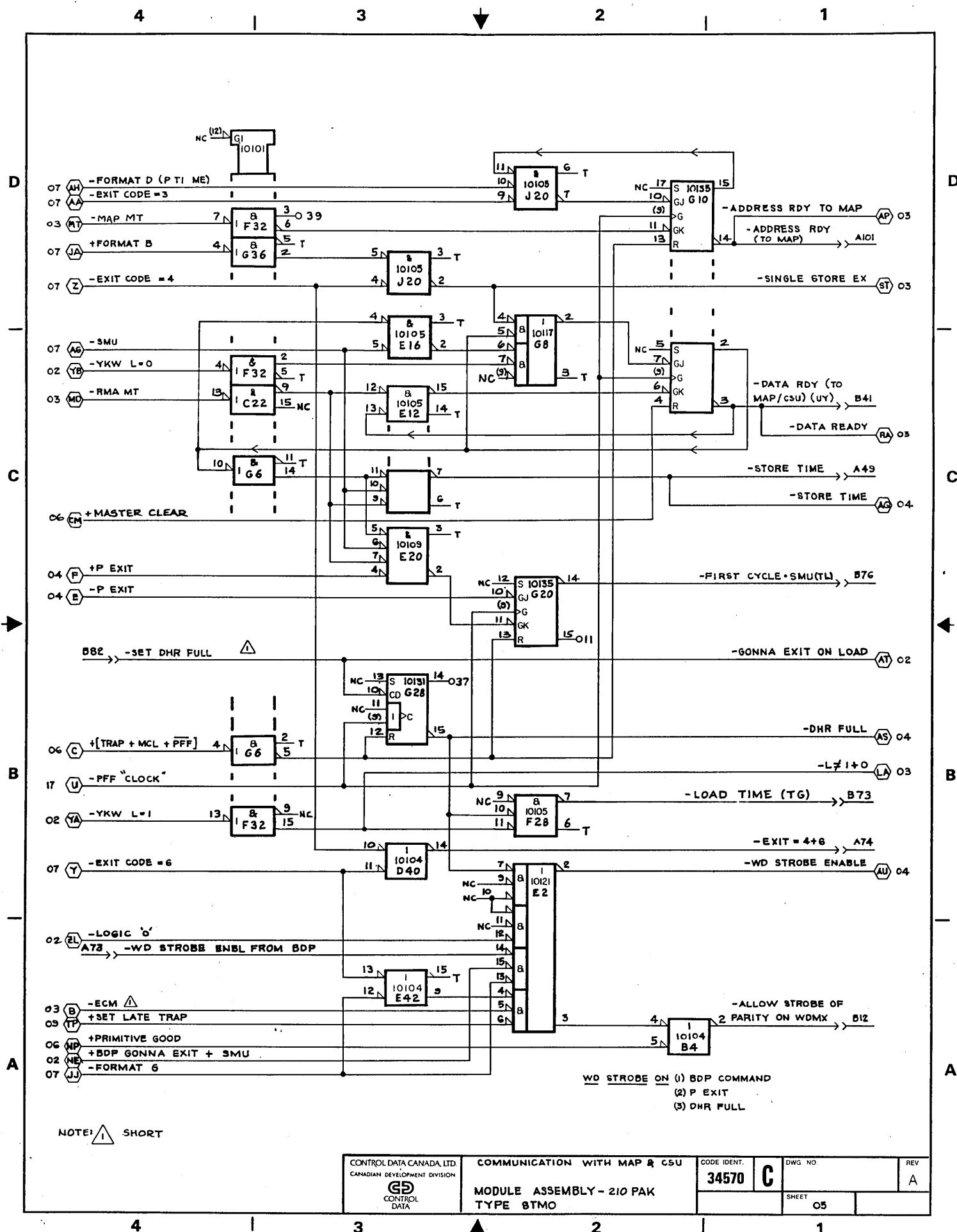
C

DWG NO.

SHEET 03A

REV  
B





4

3

2

1

D

D

C

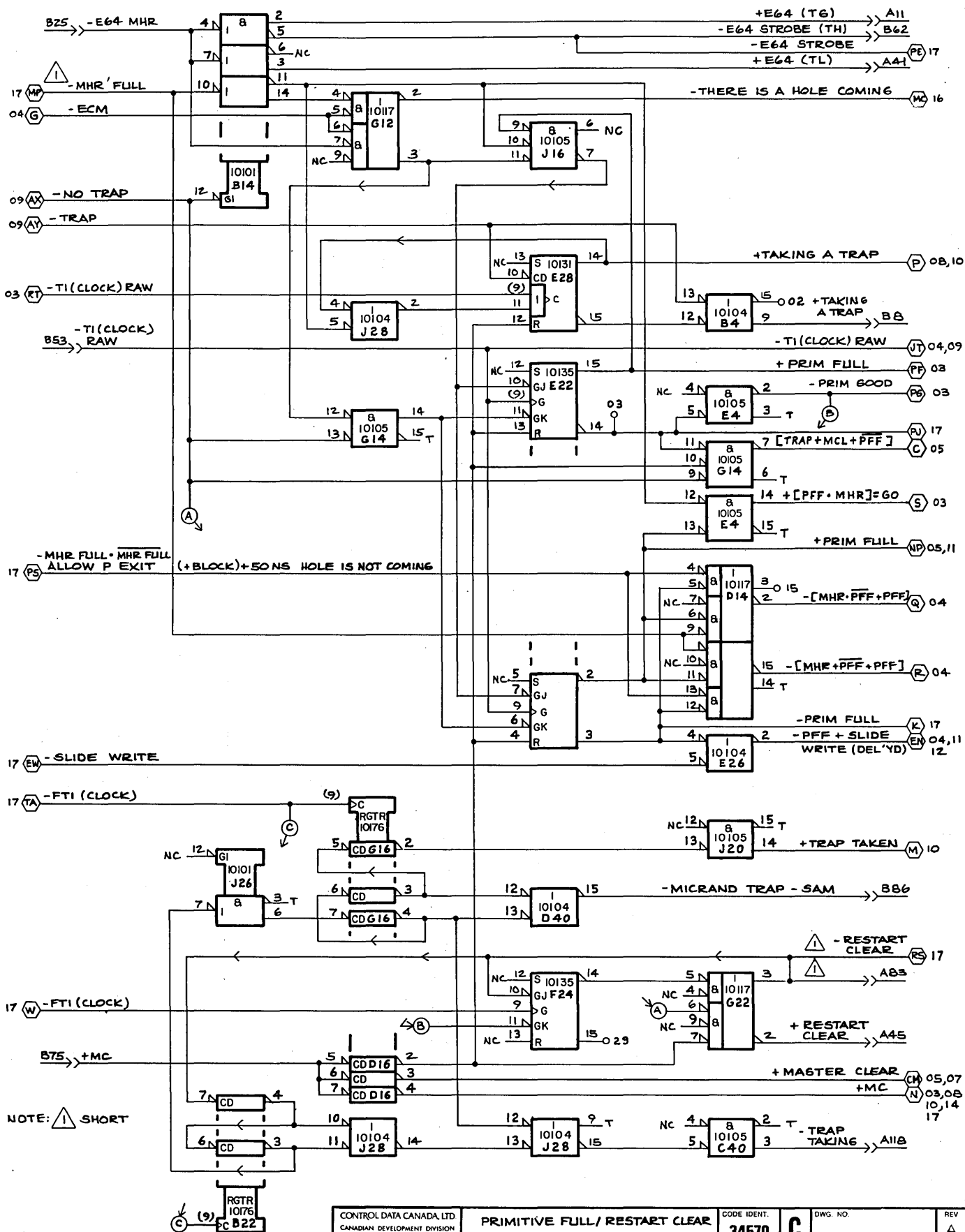
C

B

B

A

A



CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

PRIMITIVE FULL/ RESTART CLEAR  
MODULE ASSEMBLY - 210 PAK  
TYPE 8TMO

CODE IDENT.  
34570

C

DWG. NO.

SHEET 06

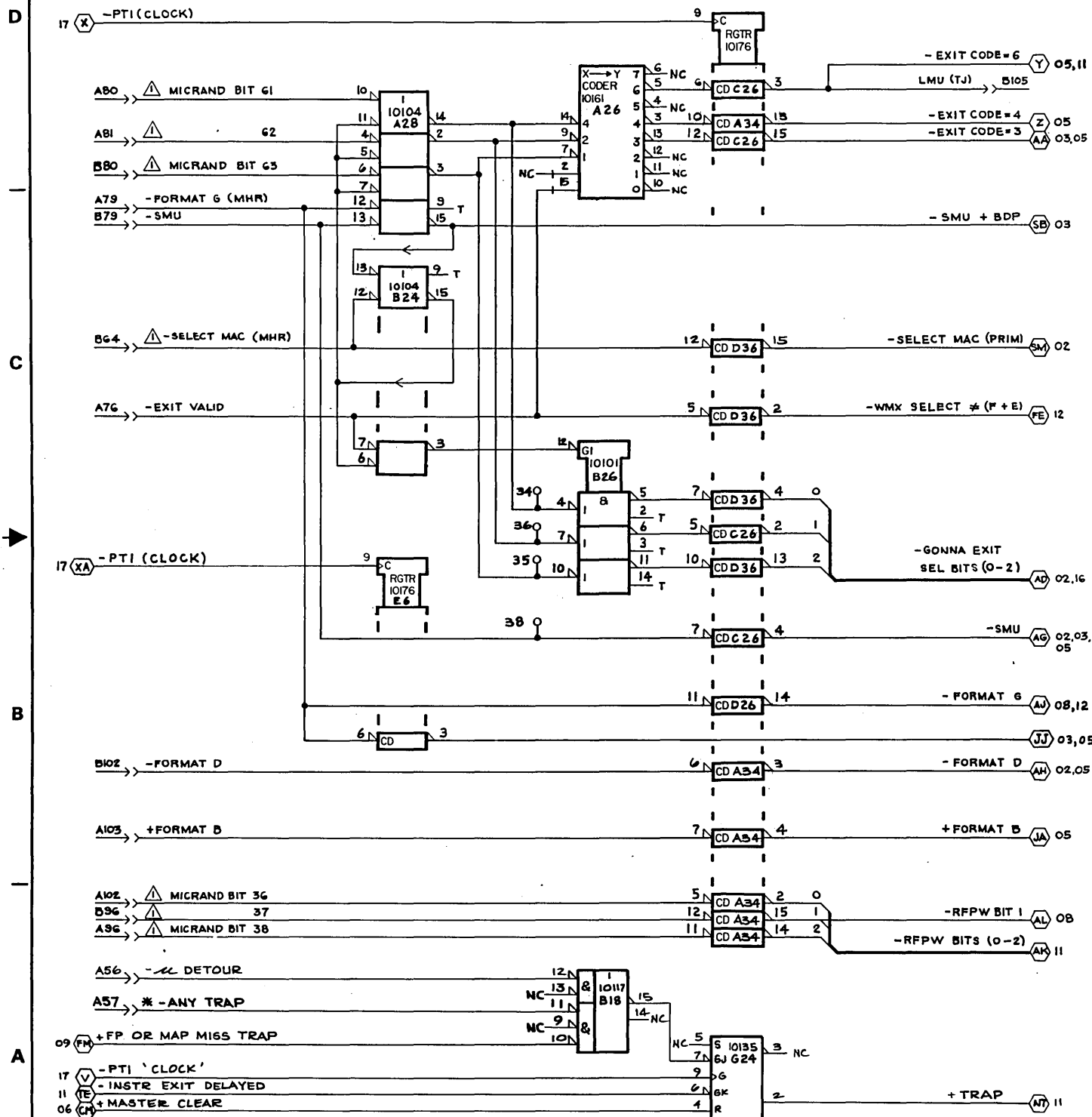
REV  
A

4

3

2

1



NOTE:  $\Delta$  DO NOT TERMINATE.  
 \* NO TERMINATOR.

CONTROL DATA CANADA, LTD.  
 CANADIAN DEVELOPMENT DIVISION  
 CD  
 CONTROL  
 DATA

PRIMITIVE FORMATION OF EXIT CODE  
 MODULE ASSEMBLY - 210 PAK  
 TYPE 8TMO

CODE IDENT.  
 34570

C

DWG. NO.  
 07

REV  
 A

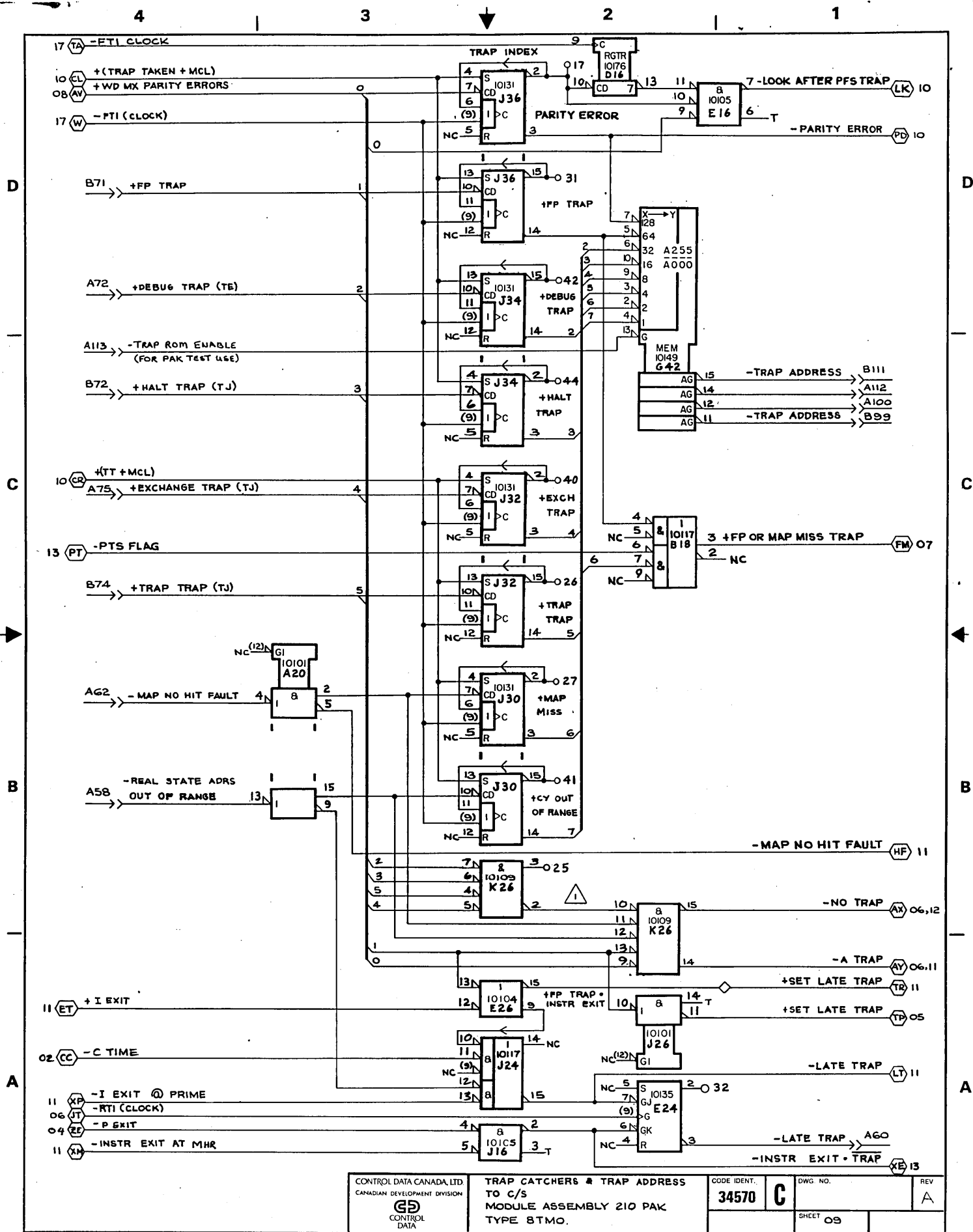
4

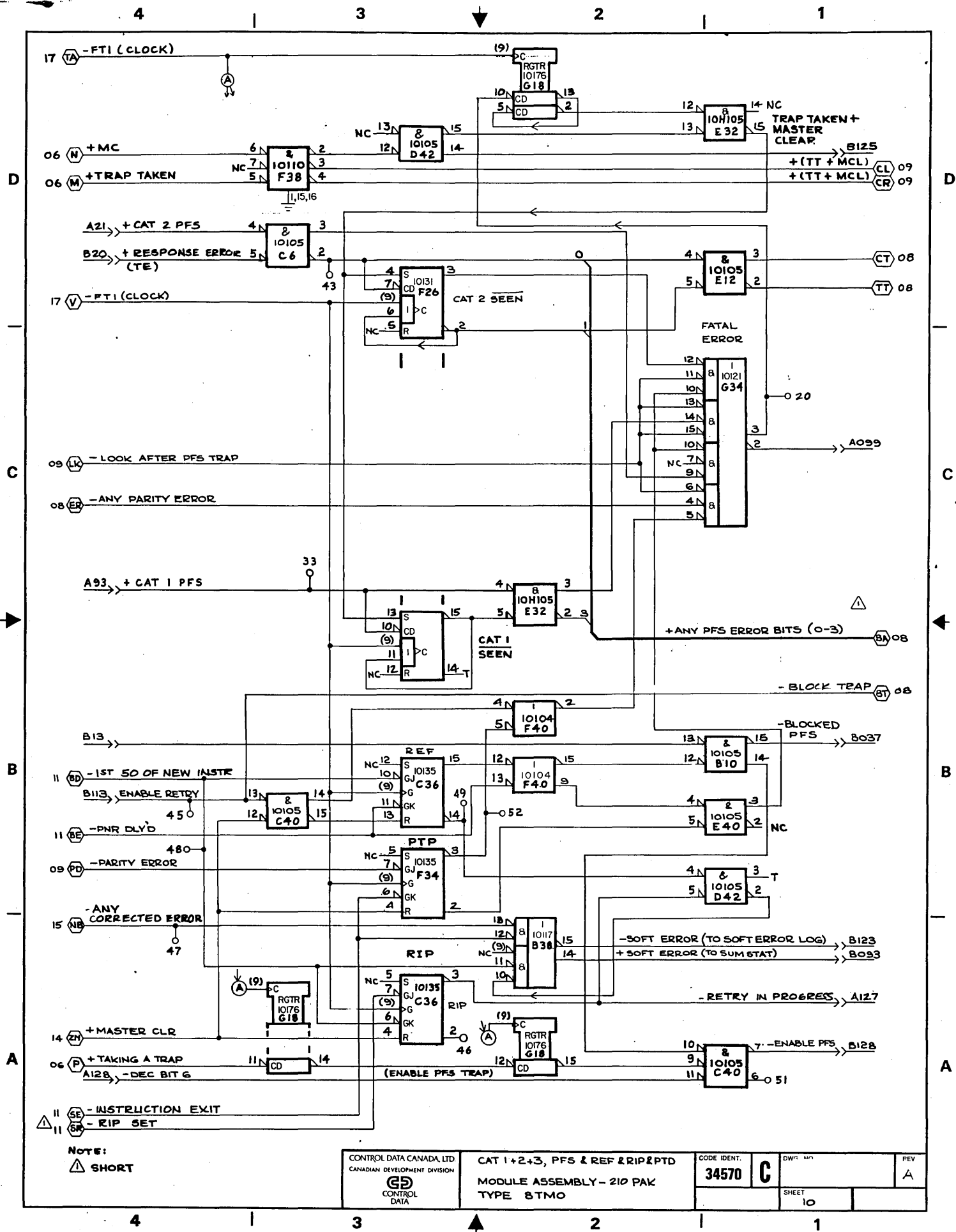
3

2

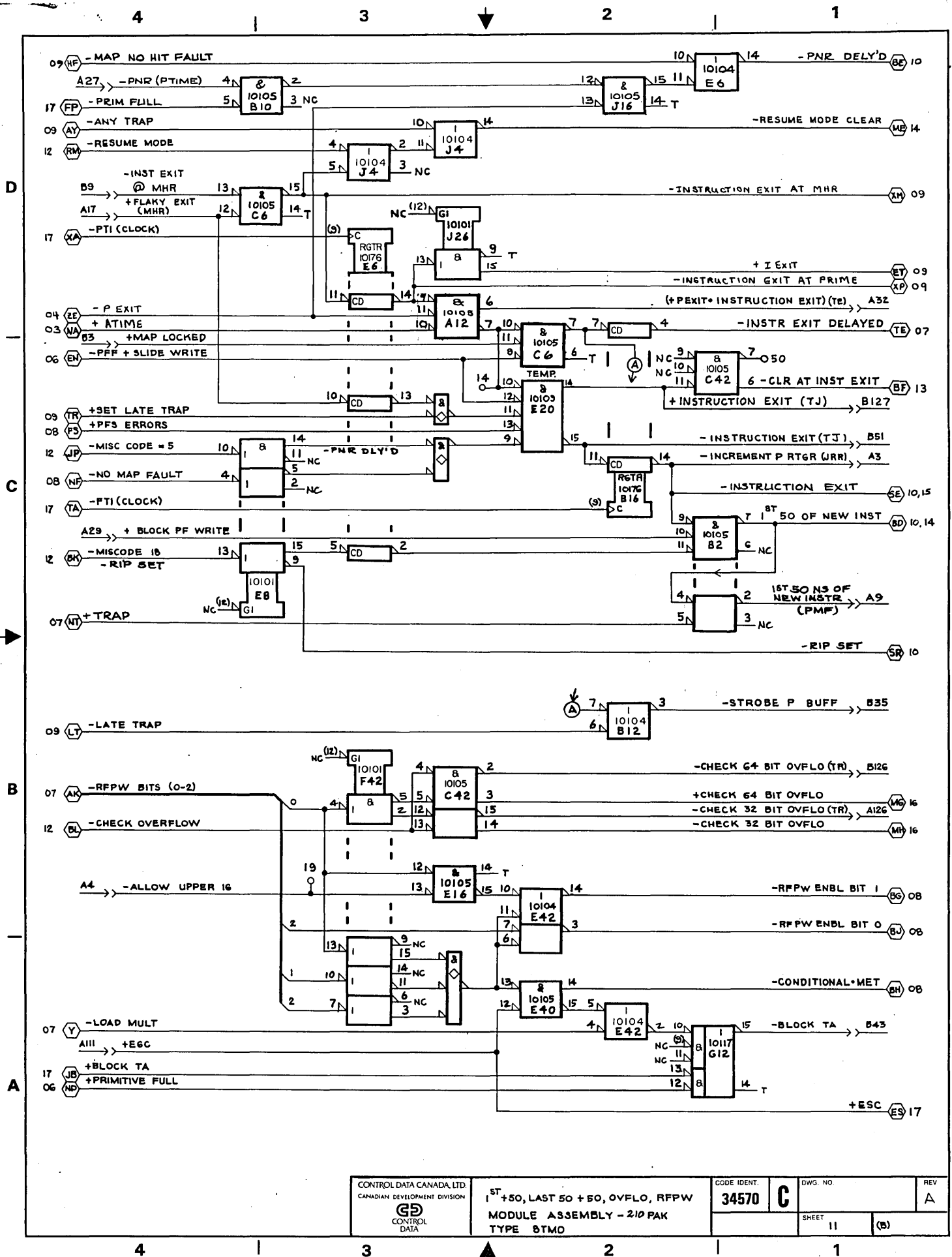
1

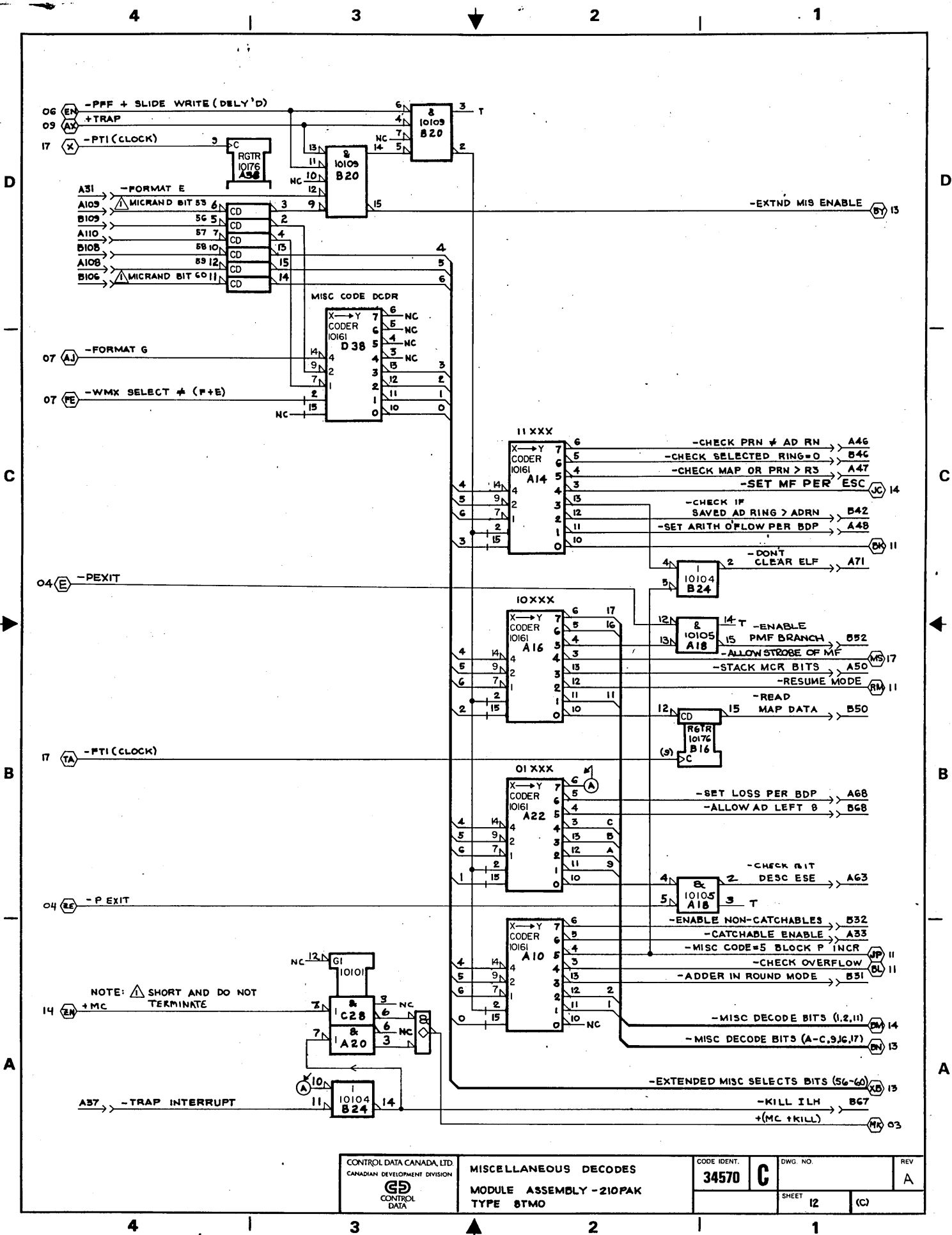












4

3

2

1

12 (BN) - MISC DECODE BITS (A-C, 9, 16, 17)

12 (XB) - EXTENDED SELECTS BITS (0-6)

12 (BY) - EXTENDED MISC ENABLE

17 (TA) - FTI (CLOCK)

17 (AW) - PTI (CLOCK)

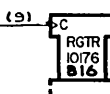
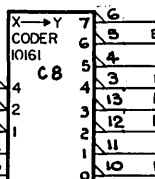
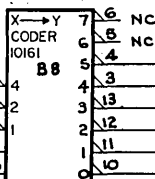
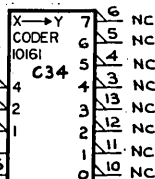
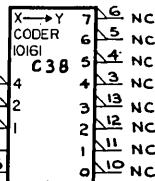
14 (AE) + MC

11 (BF) - CLEAR AT INSTR EXIT

09 (XE) - INSTR EXIT - TRAP

14 (AF) + MC

## EXTENDED DECODES



-DISABLE IIF CODE → A26

-LOAD RIT → B26

-BDP RESULT FIELD LENGTH CHECK → B22

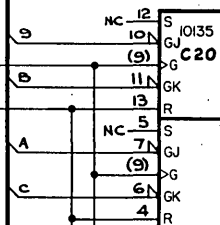
-DISABLE ALL INTERRUPTS → A23

-WRITE SIT → B23

-CLEAR MAC REQUEST → A25

-BLOCK PIT → B38

## NORMAL MISCODES



-FLAG 1 → A61

2 → A59

-FLAG 3 → A52

-PTS → A51

-PTS FLAG (PT) 09

-STACK PURGE → B45

-TRAP FLAG → A43

(E0-E3) (BP) 14

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL DATA

MISC FLAGS  
MODULE ASSEMBLY -210 PAK  
TYPE 8TMO

CODE IDENT.  
34570

C

DWG. NO.

REV

A

SHEET

13

(D)

4

3

2

1

4

3

2

1

D

D

C

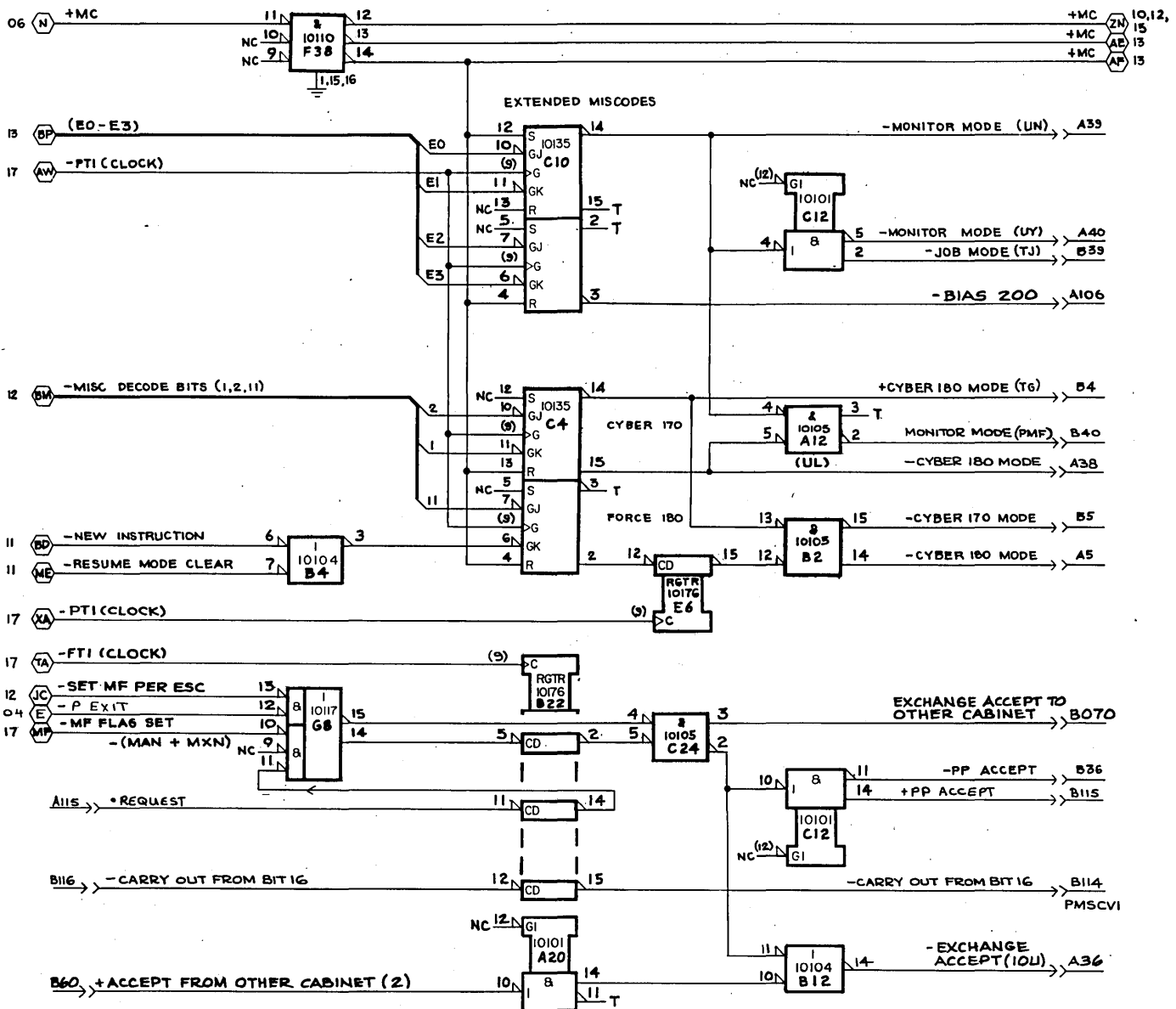
C

B

B

A

A

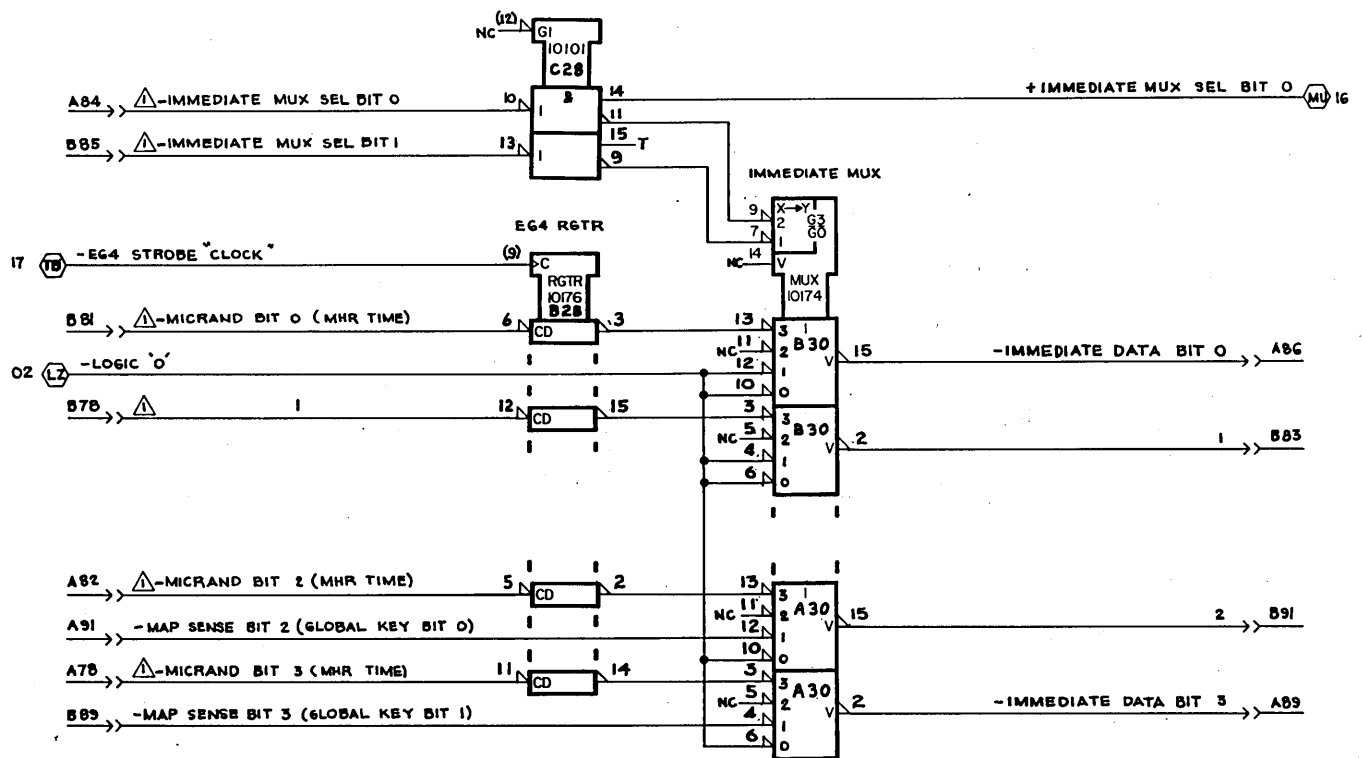
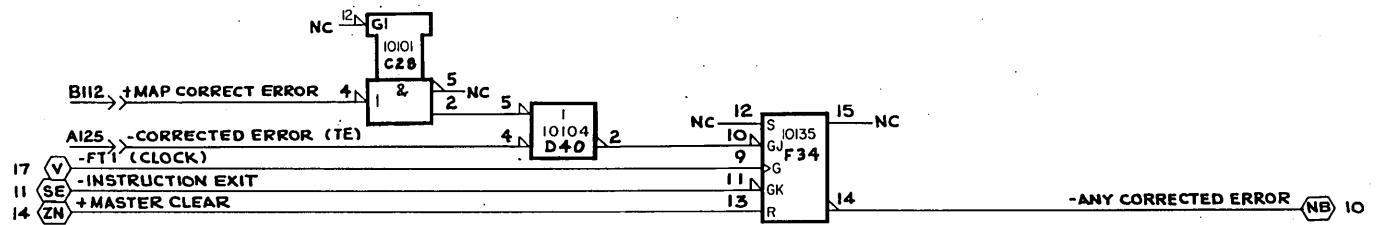


4

3

2

1



NOTE:  $\Delta$  SHORT AND DO NOT TERMINATE

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

IMMEDIATE MUX BITS 0-2  
MODULE ASSEMBLY -210PAK  
TYPE 8TMO

CODE IDENT.  
34570

C

DWG. NO.  
19269350

SHEET  
15

REV  
A

(F)

4

3

2

1

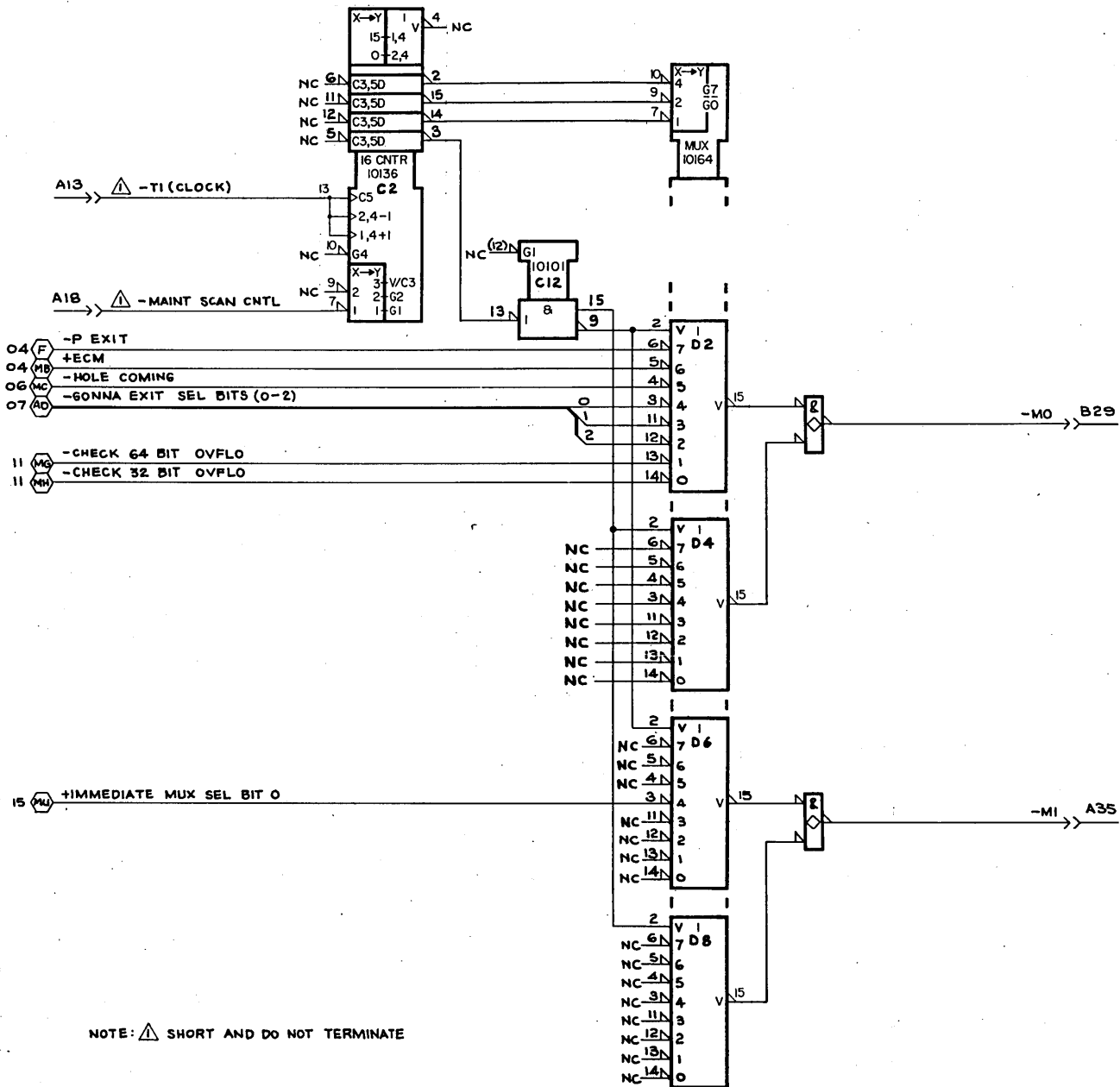
4

3

2

1

## MAINTAINANCE SCAN



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

MAINTAINANCE SCAN  
MODULE ASSEMBLY - 210 PAK  
TYPE 8TMO.

CODE IDENT.  
**34570**

DWG. NO.  
**C**

REV  
**A**

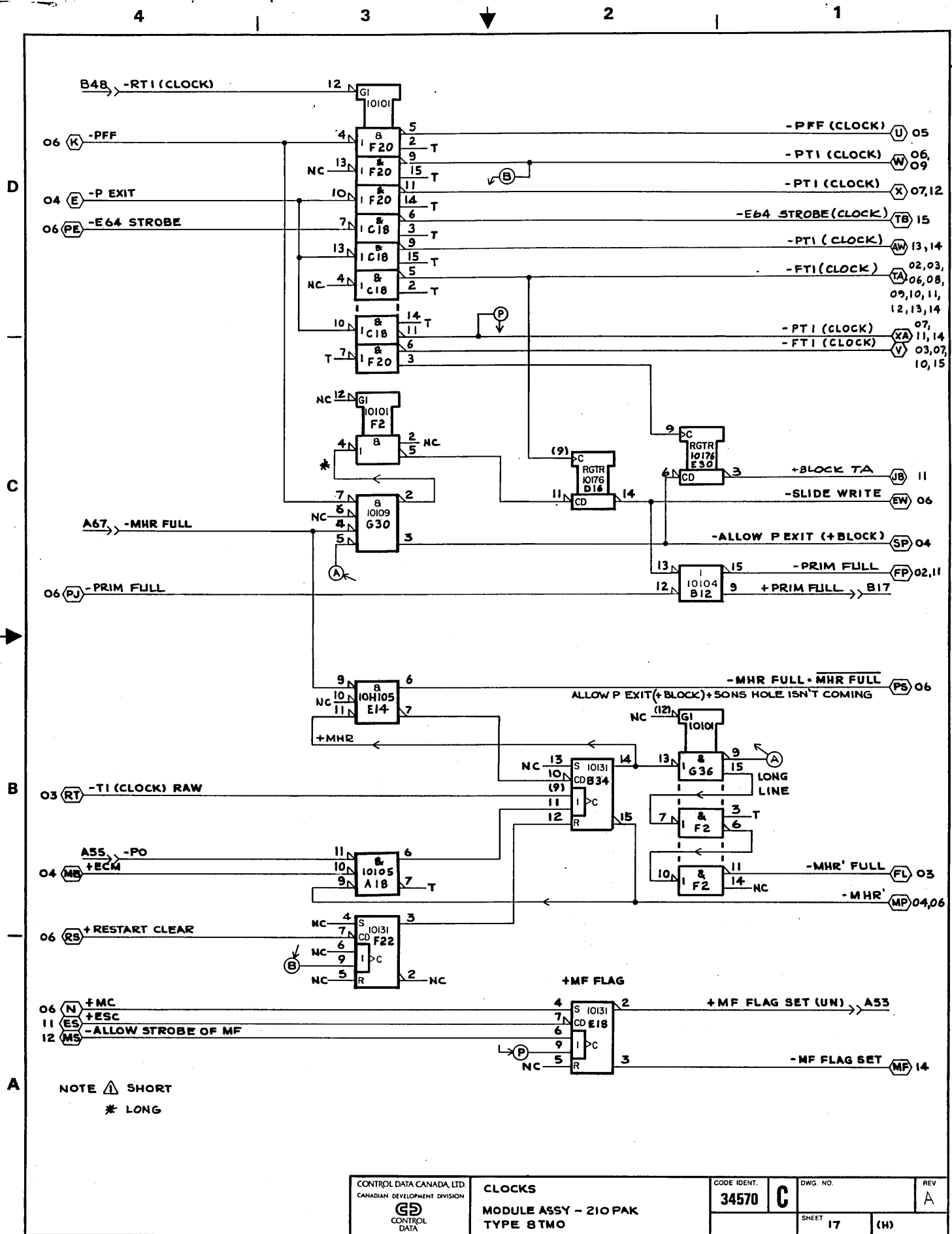
SHEET  
**16** (6)

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

CLOCKS  
MODULE ASSY - 210PAK  
TYPE 8TMO

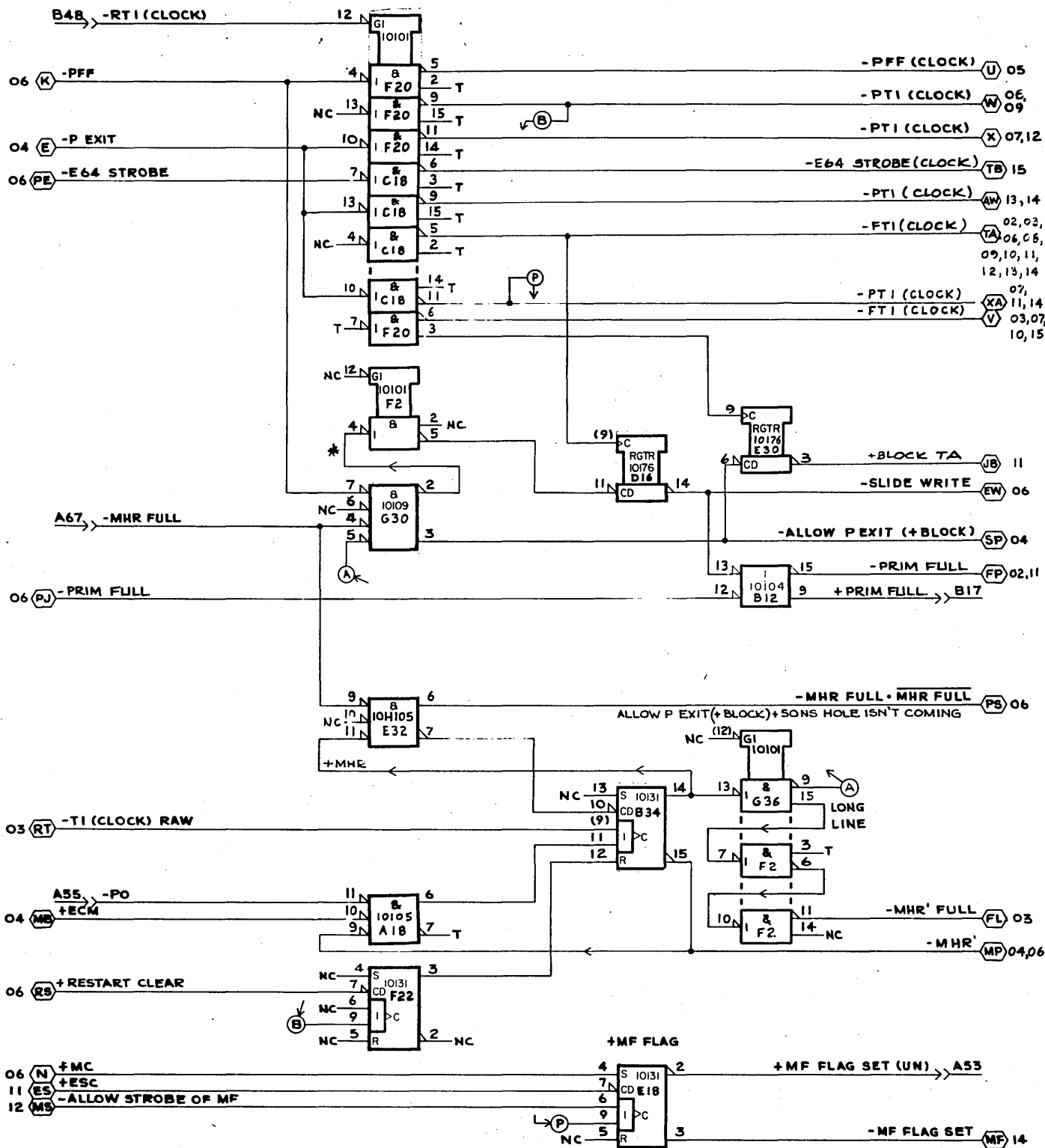
CODE IDENT.	DWG. NO.	REV
34570	C	A
SHEET 17		(H)

4

3

2

1



NOTE  $\Delta$  SHORT  
\* LONG

CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

CLOCKS  
MODULE ASSY - 210 PAK  
TYPE 8TMO

CODE IDENT.  
34570

DWG NO  
C

REV  
A

SHEET 17A (H)



4

3

2

1

## TRAP ADDRESS ROM FOR BTMO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149  
 \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:  
 - MOST SIGNIFICANT BIT AT TOP OF SYMBOL  
 - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL  
 \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 K38 19266833

## ADDR CONTENTS

00 0  
 01 A  
 02 E  
 03 A  
 04 0  
 05 A  
 06 E  
 07 A  
 08 2  
 09 2  
 0A 2  
 0B 2  
 0C 2  
 0D 2  
 0E 2  
 0F 2  
 10 4  
 11 4  
 12 4  
 13 4  
 14 4  
 15 4  
 16 4  
 17 4  
 18 4  
 19 4  
 1A 4  
 1B 4  
 1C 4  
 1D 4  
 1E 4  
 1F 4  
 20 6  
 21 A  
 22 E  
 23 A  
 24 0  
 25 A  
 26 E  
 27 A  
 28 2  
 29 2  
 2A 2  
 2B 2  
 2C 2  
 2D 2  
 2E 2  
 2F 2  
 30 4  
 31 4  
 32 4  
 33 4  
 34 4  
 35 4  
 36 4  
 37 4  
 38 4  
 39 4  
 3A 4  
 3B 4  
 3C 4  
 3D 4  
 3E 4  
 3F 4

## ADDR CONTENTS

40 C  
 41 A  
 42 E  
 43 A  
 44 C  
 45 A  
 46 E  
 47 A  
 48 2  
 49 2  
 4A 2  
 4B 2  
 4C 2  
 4D 2  
 4E 2  
 4F 2  
 50 4  
 51 4  
 52 4  
 53 4  
 54 4  
 55 4  
 56 4  
 57 4  
 58 4  
 59 4  
 5A 4  
 5B 4  
 5C 4  
 5D 4  
 5E 4  
 5F 4  
 60 C  
 61 A  
 62 E  
 63 A  
 64 C  
 65 A  
 66 E  
 67 A  
 68 2  
 69 2  
 6A 2  
 6B 2  
 6C 2  
 6D 2  
 6E 2  
 6F 2  
 70 4  
 71 4  
 72 4  
 73 4  
 74 4  
 75 4  
 76 4  
 77 4  
 78 4  
 79 4  
 7A 4  
 7B 4  
 7C 4  
 7D 4  
 7E 4  
 7F 4

## ADDR CONTENTS

80 8  
 81 8  
 82 8  
 83 8  
 84 8  
 85 8  
 86 8  
 87 8  
 88 8  
 89 8  
 8A 8  
 8B 8  
 8C 8  
 8D 8  
 8E 8  
 8F 8  
 90 8  
 91 8  
 92 8  
 93 8  
 94 8  
 95 8  
 96 8  
 97 8  
 98 8  
 99 8  
 9A 8  
 9B 8  
 9C 8  
 9D 8  
 9E 8  
 9F 8  
 A0 8  
 A1 8  
 A2 8  
 A3 8  
 A4 8  
 A5 8  
 A6 8  
 A7 8  
 A8 8  
 A9 8  
 AA 8  
 AB 8  
 AC 8  
 AD 8  
 AE 8  
 AF 8  
 B0 8  
 B1 8  
 B2 8  
 B3 8  
 B4 8  
 B5 8  
 B6 8  
 B7 8  
 B8 8  
 B9 8  
 BA 8  
 BB 8  
 BC 8  
 BD 8  
 BE 8  
 BF 8

## ADDR CONTENTS

C0 8  
 C1 8  
 C2 8  
 C3 8  
 C4 8  
 C5 8  
 C6 8  
 C7 8  
 C8 8  
 C9 8  
 CA 8  
 CB 8  
 CC 8  
 CD 8  
 CE 8  
 CF 8  
 D0 8  
 D1 8  
 D2 8  
 D3 8  
 D4 8  
 D5 8  
 D6 8  
 D7 8  
 D8 8  
 D9 8  
 DA 8  
 DB 8  
 DC 8  
 DD 8  
 DE 8  
 DF 8  
 E0 8  
 E1 8  
 E2 8  
 E3 8  
 E4 8  
 E5 8  
 E6 8  
 E7 8  
 E8 8  
 E9 8  
 EA 8  
 EB 8  
 EC 8  
 ED 8  
 EE 8  
 EF 8  
 F0 8  
 F1 8  
 F2 8  
 F3 8  
 F4 8  
 F5 8  
 F6 8  
 F7 8  
 F8 8  
 F9 8  
 FA 8  
 FB 8  
 FC 8  
 FD 8  
 FE 8  
 FF 8

CONTROL DATA CANADA LTD.  
 CANADIAN DEVELOPMENT DIVISION



TRAP ADDRESS ROM FOR BTMO

MODULE ASSY - 210 PAK  
 TYPE - BTMO

CODE IDENT.

34570

C

DWG. NO.

19269350

REV

A

SHEET

18

4

3

2

1

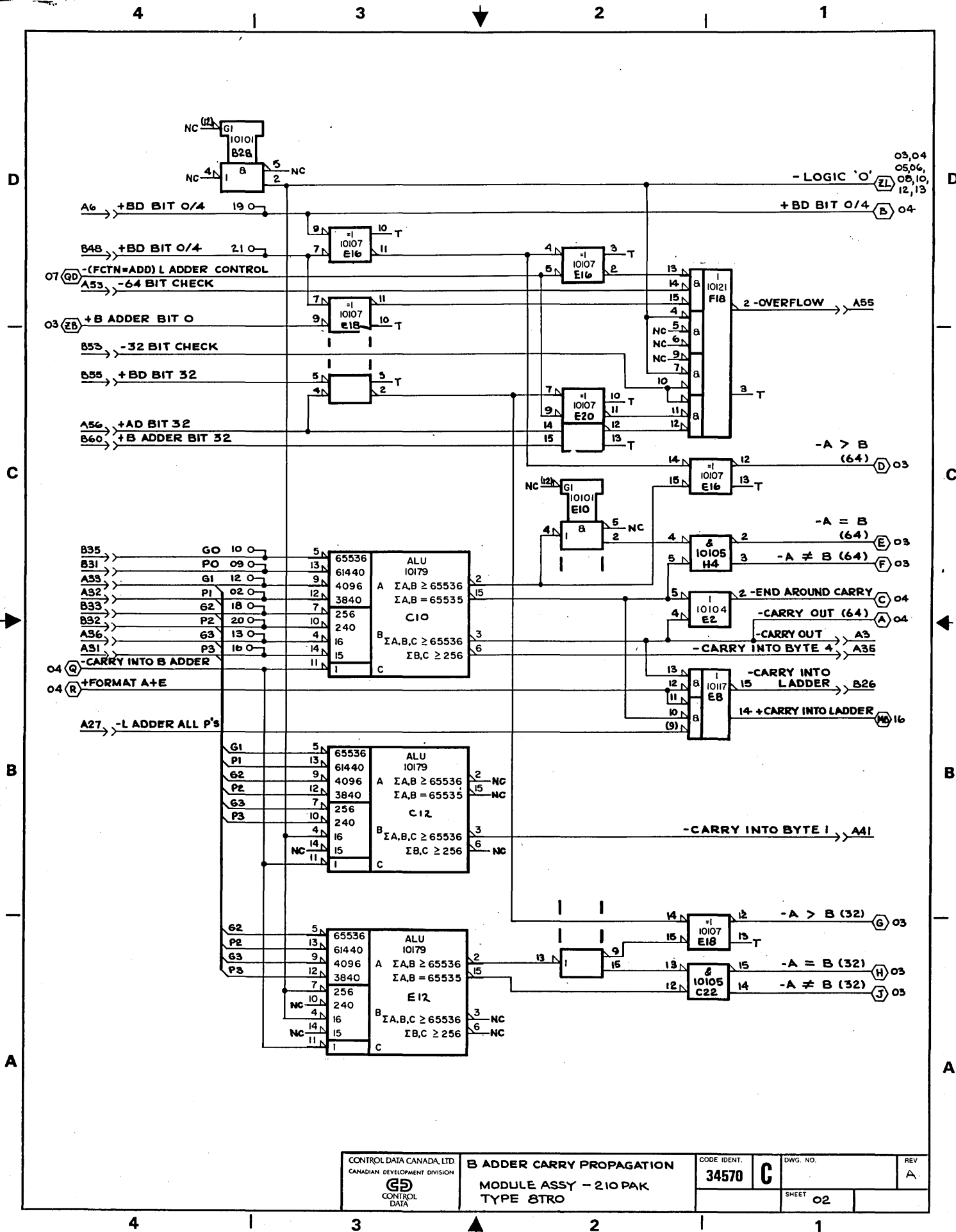
CC

C

C

C

CC



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CONTROL DATA

B ADDER CARRY PROPAGATION  
MODULE ASSY - 210 PAK  
TYPE 8TRO

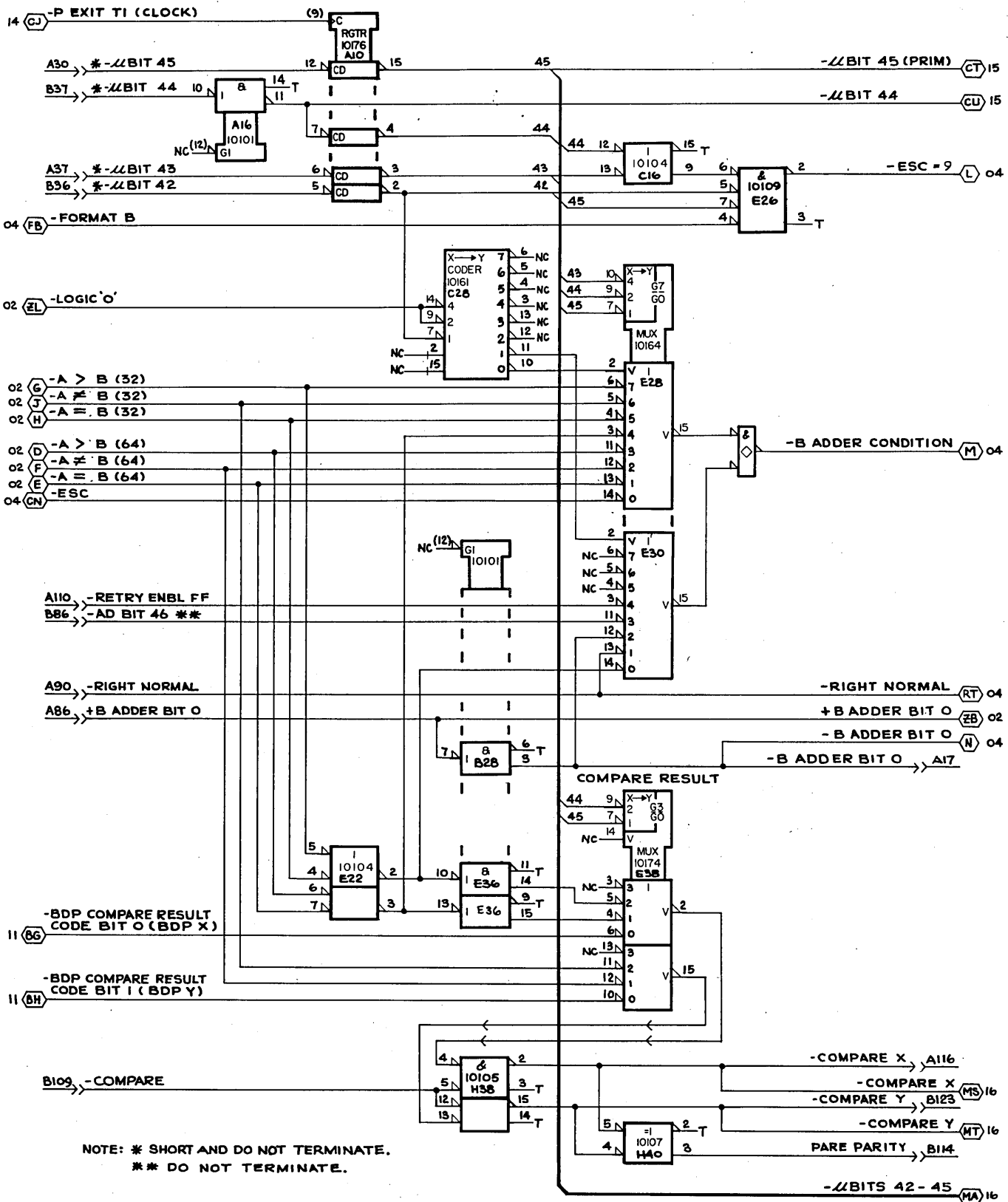
CODE IDENT.	DWG. NO.	REV
34570 C		A
SHEET 02		

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

EXECUTION SENSE AND  
COMPARE RESULT  
MODULE ASSY - 210PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

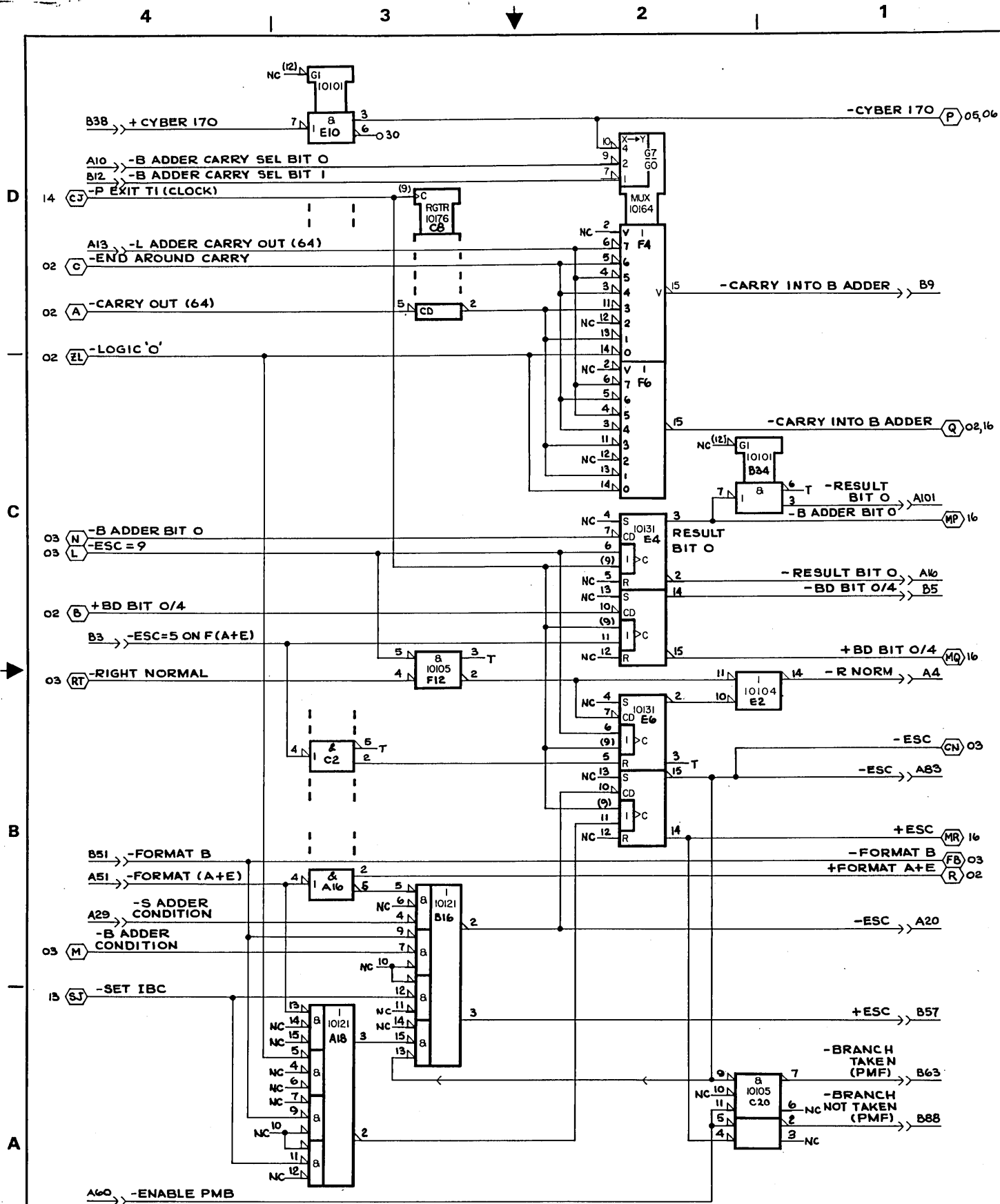
03

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

B ADDER CARRY, ESC  
MODULE ASSY - 210PAK  
TYPE 8TRO

CODE IDENT.  
34570

C

DWG. NO.  
04

SHEET

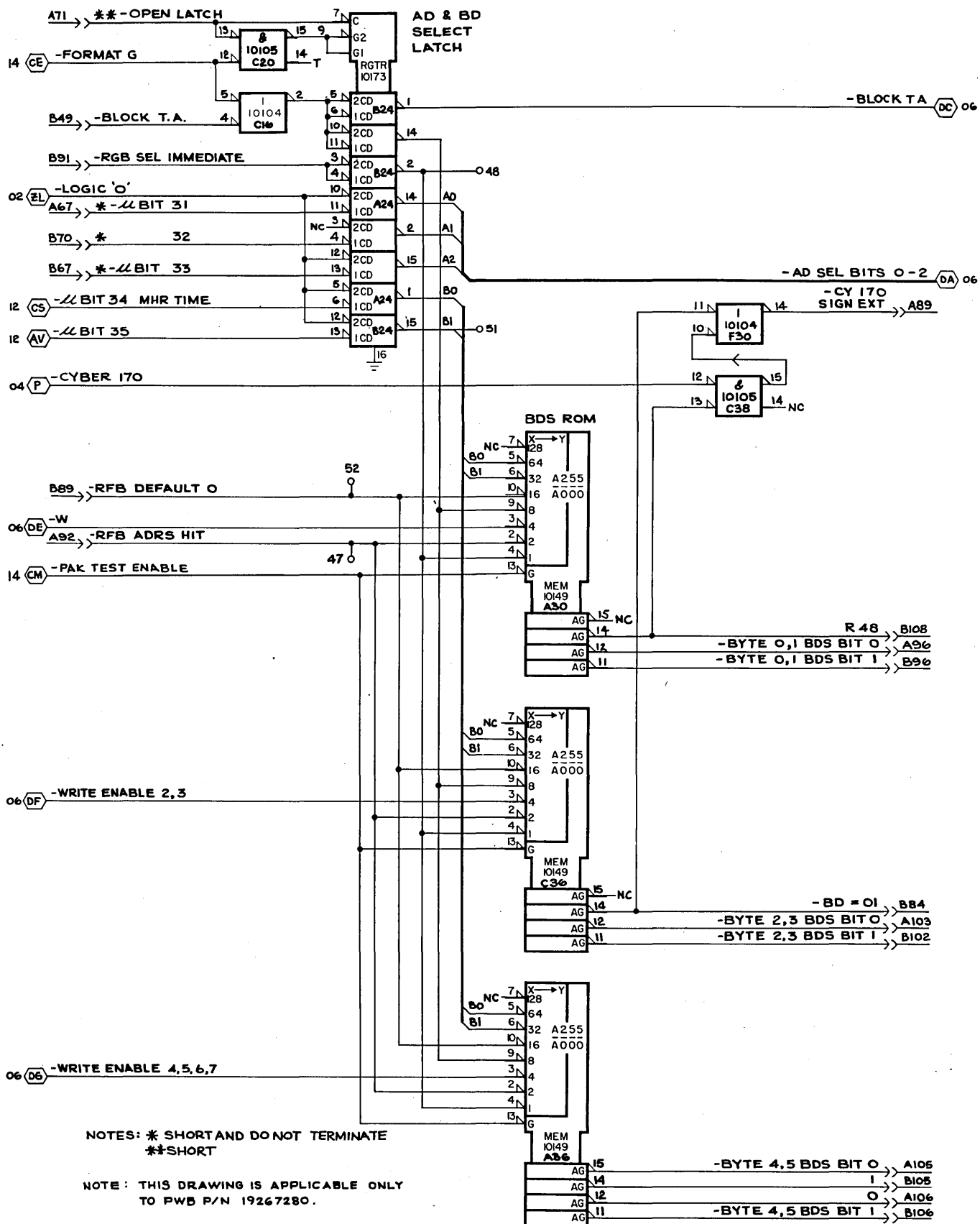
REV  
A

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

AD & BD SELECT LATCH AND  
BDS ROM  
MODULE ASSY - 210PAK  
TYPE 8TRO

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

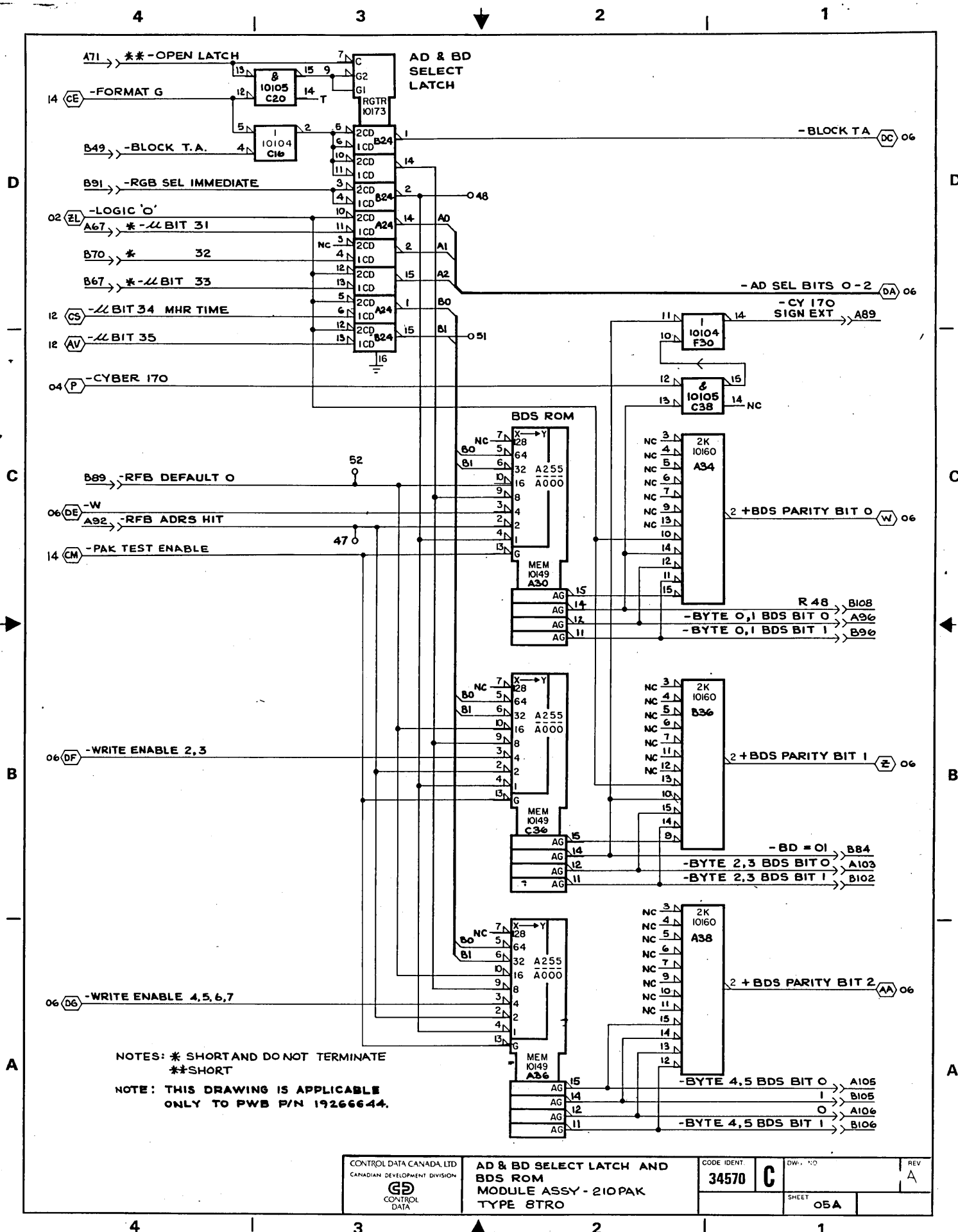
SHEET  
05

4

3

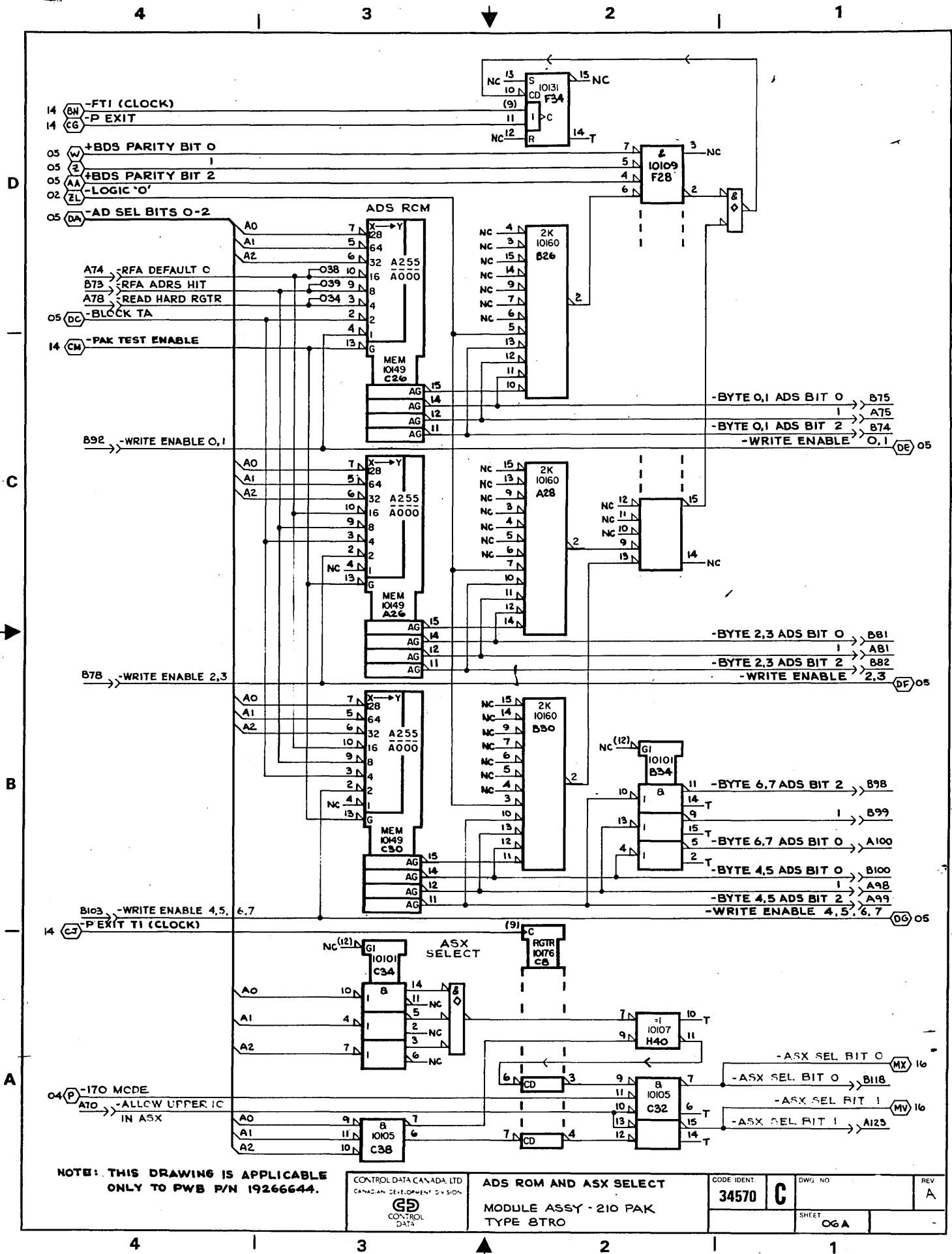
2

1

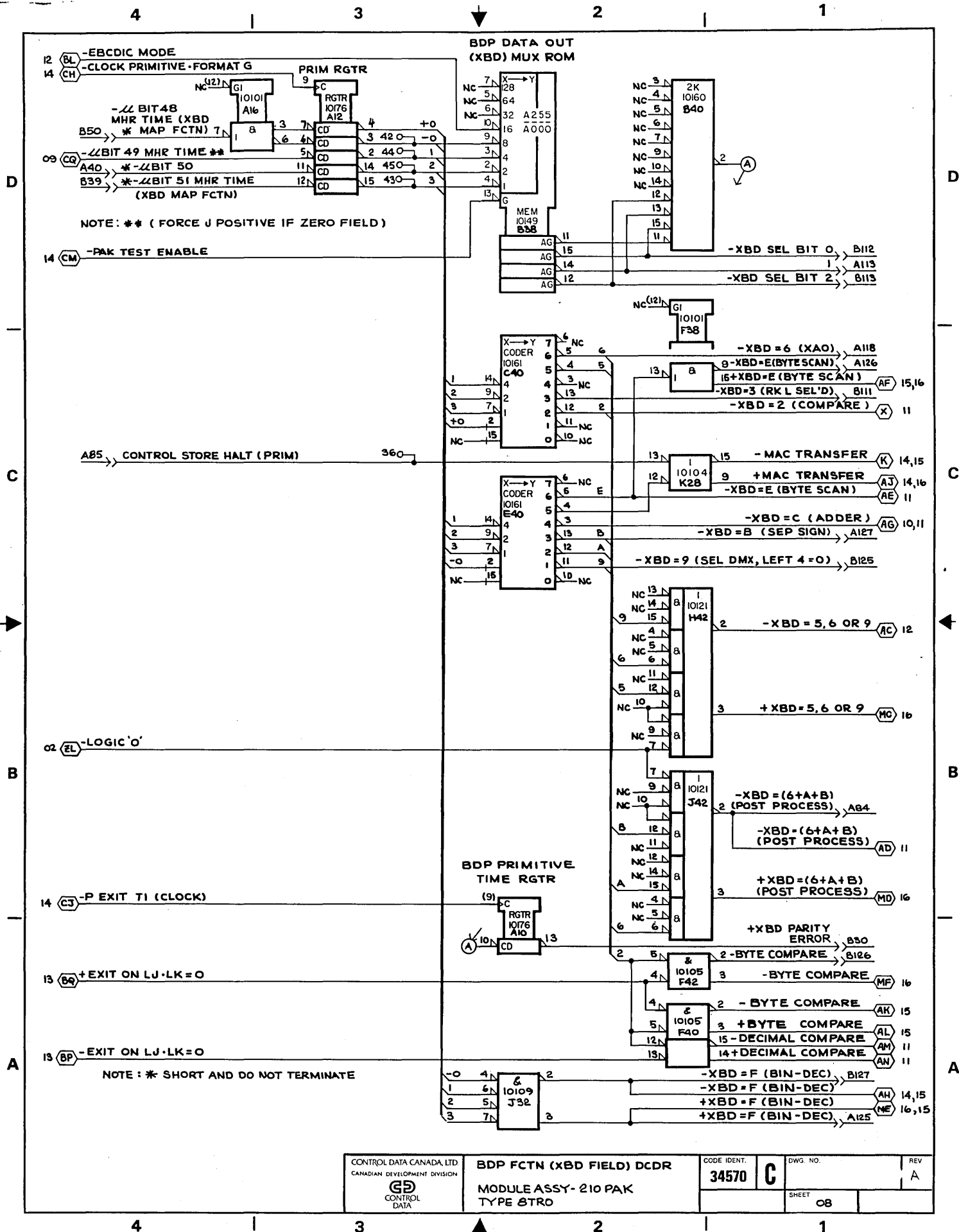












4

3

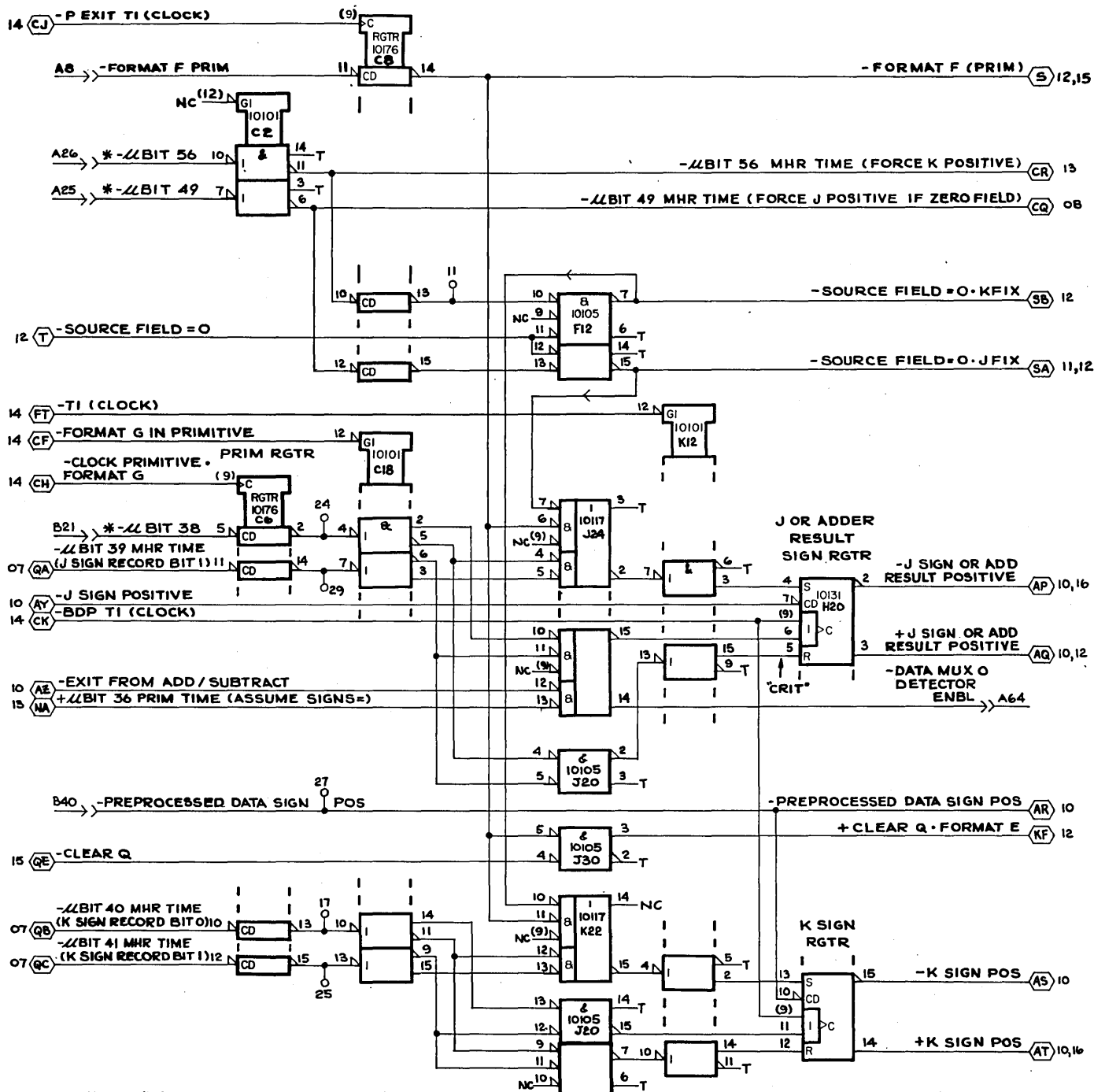
2

1

NOTE: COMPLETE NAME ON INPUT PIN A26 IS: - $\mathbb{L}$  BIT 56 MHR TIME (FORCE K POSITIVE)

A25: - $\mathbb{L}$  BIT 49 MHR TIME (FORCE J POSITIVE IF ZERO FIELD)

B21: - $\mathbb{L}$  BIT 38 MHR TIME (J SIGN RECORD BIT 0)



NOTE: \* SHORT AND DO NOT TERMINATE

NOTE: THIS DRAWING IS APPLICABLE ONLY TO PWB P/N 19267280.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

J SIGN, K SIGN  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

09

4

3

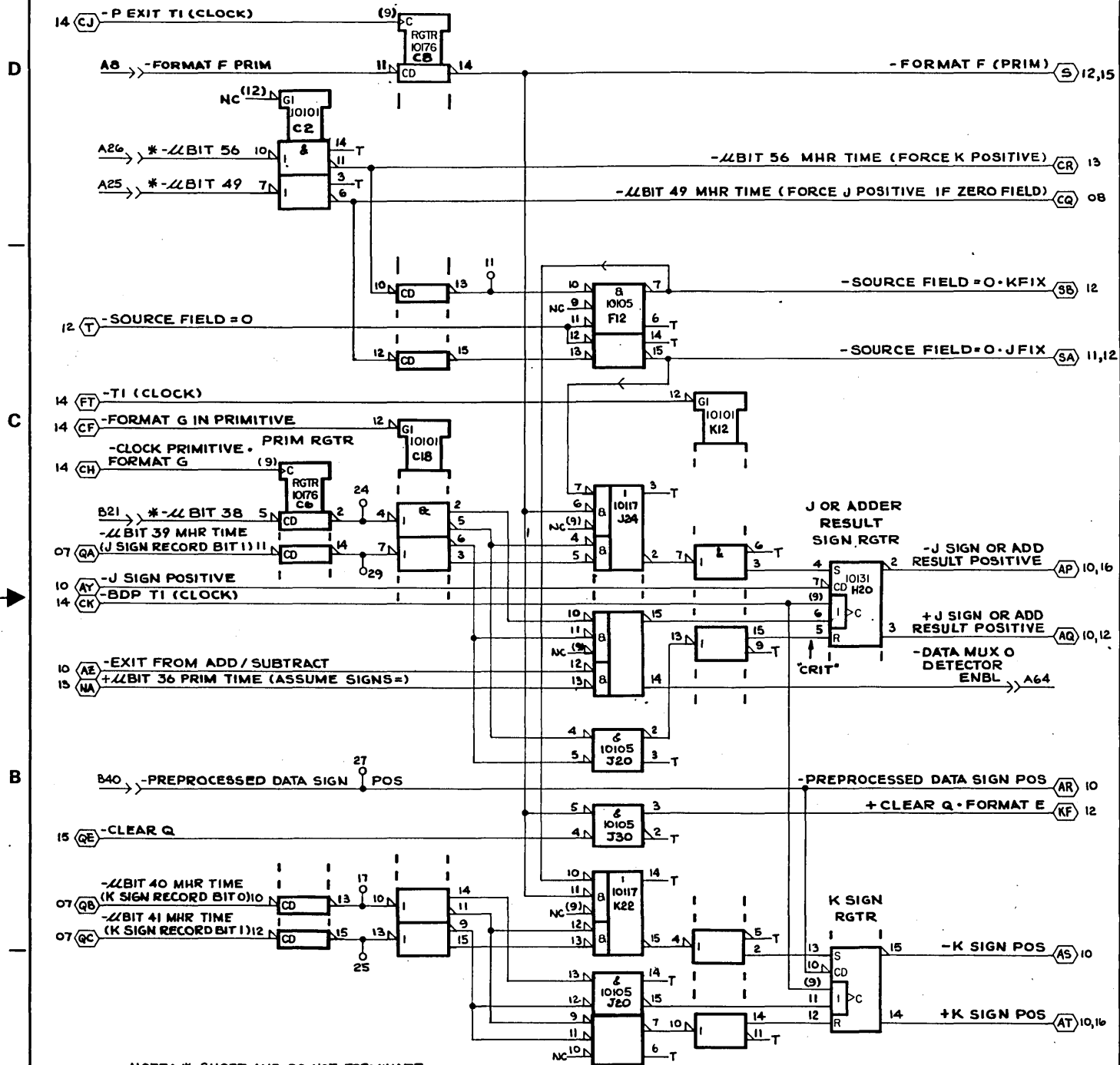
2

1

NOTE : COMPLETE NAME ON INPUT PIN A26 IS : -LL BIT 56 MHR TIME ( FORCE K POSITIVE)

A25 : -LL BIT 49 MHR TIME ( FORCE J POSITIVE IF ZERO FIELD)

B21 : -LL BIT 38 MHR TIME (J SIGN RECORD BIT O)



NOTE: \* SHORT AND DO NOT TERMINATE

NOTE: THIS DRAWING IS APPLICABLE ONLY TO FWS P/N 17266644.

CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

J SIGN, K SIGN  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.  
34570

C

DWG NO

SHEET 09A

REV A





4

3

2

1

D

D

C

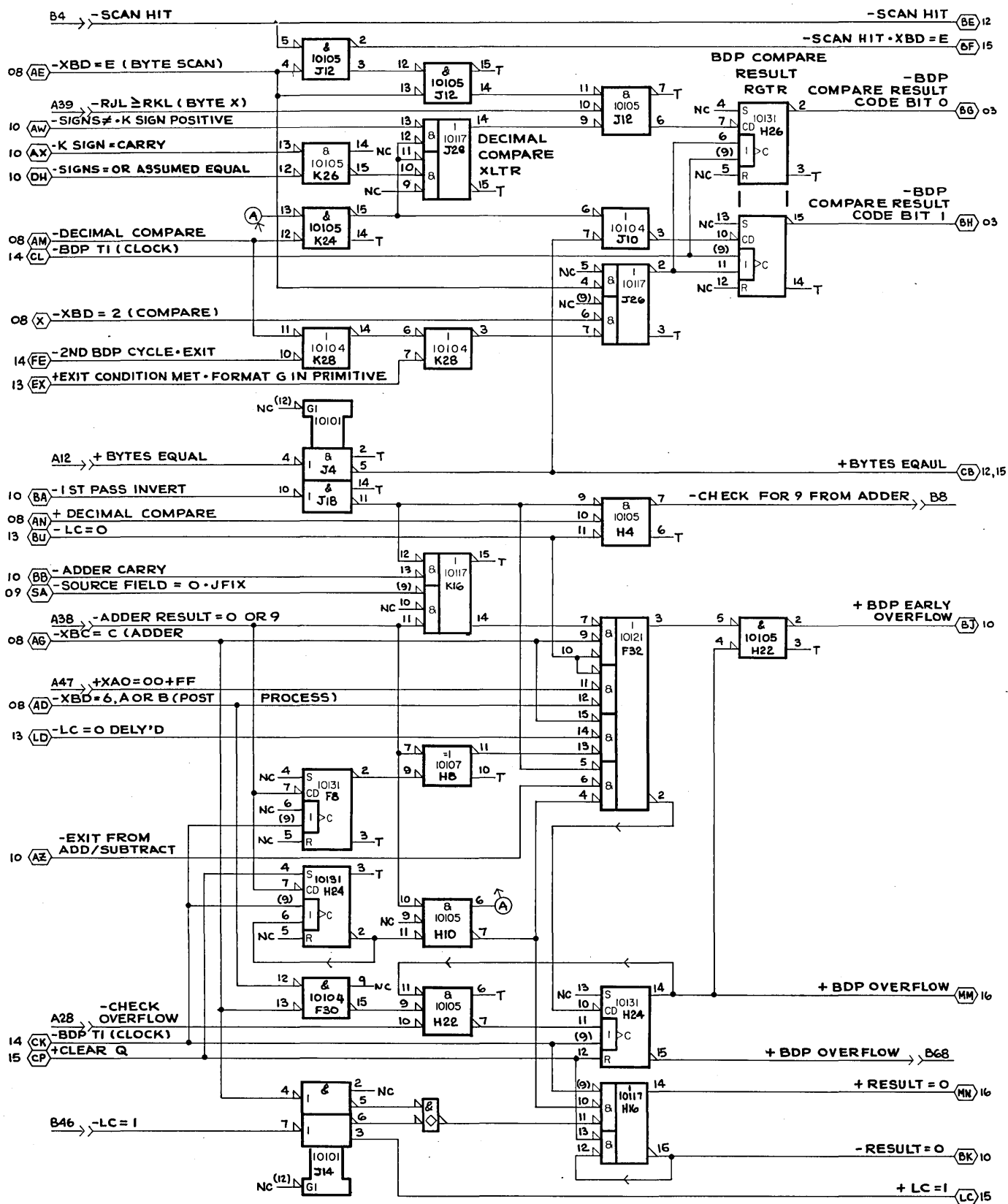
C

B

B

A

A



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



CONTROL  
DATA

BDP COMPARE RESULTS DCDR,  
BDP OVERFLOW/LOSS OF SIGNIFICANCE  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

D

C

REV

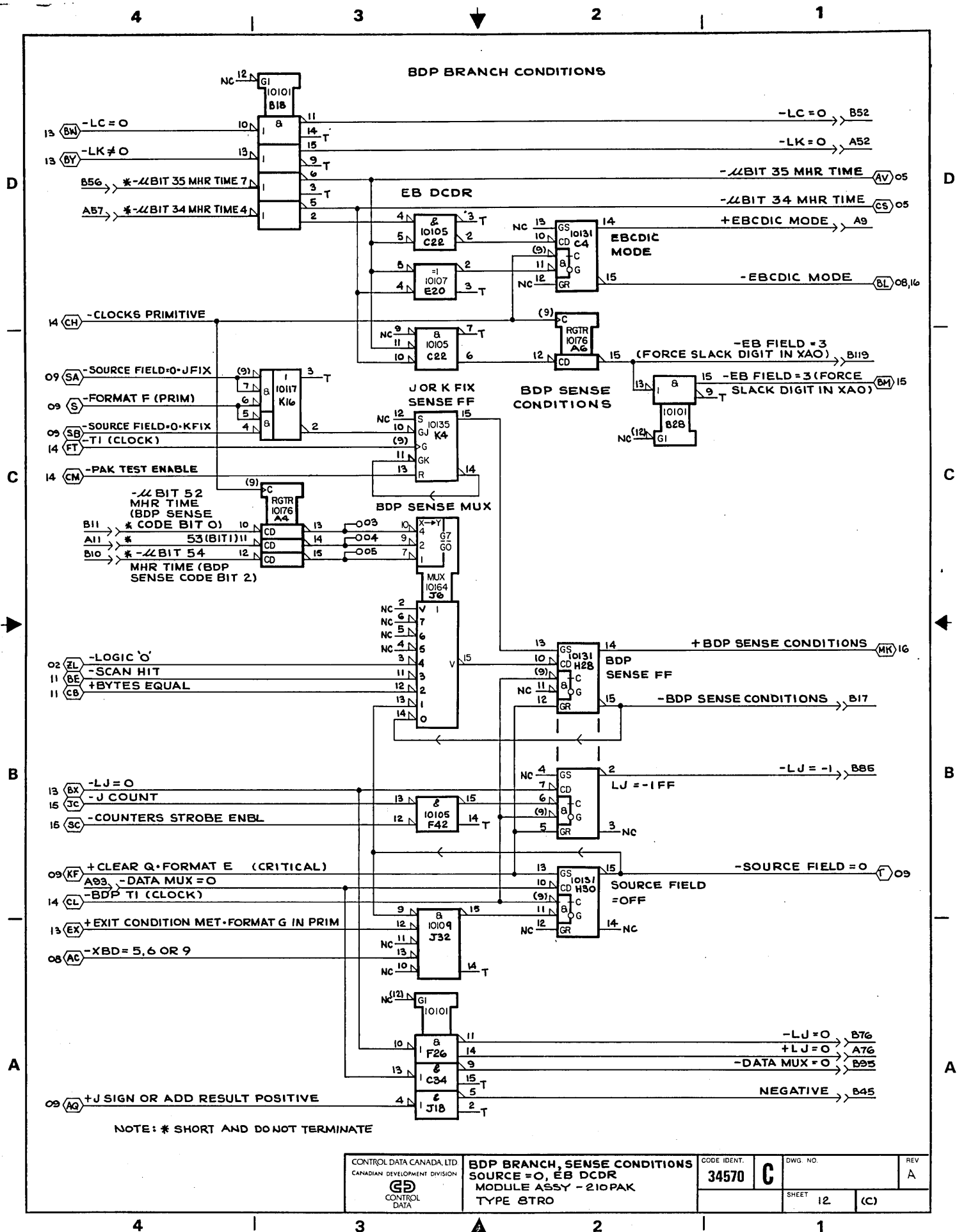
A

SHEET

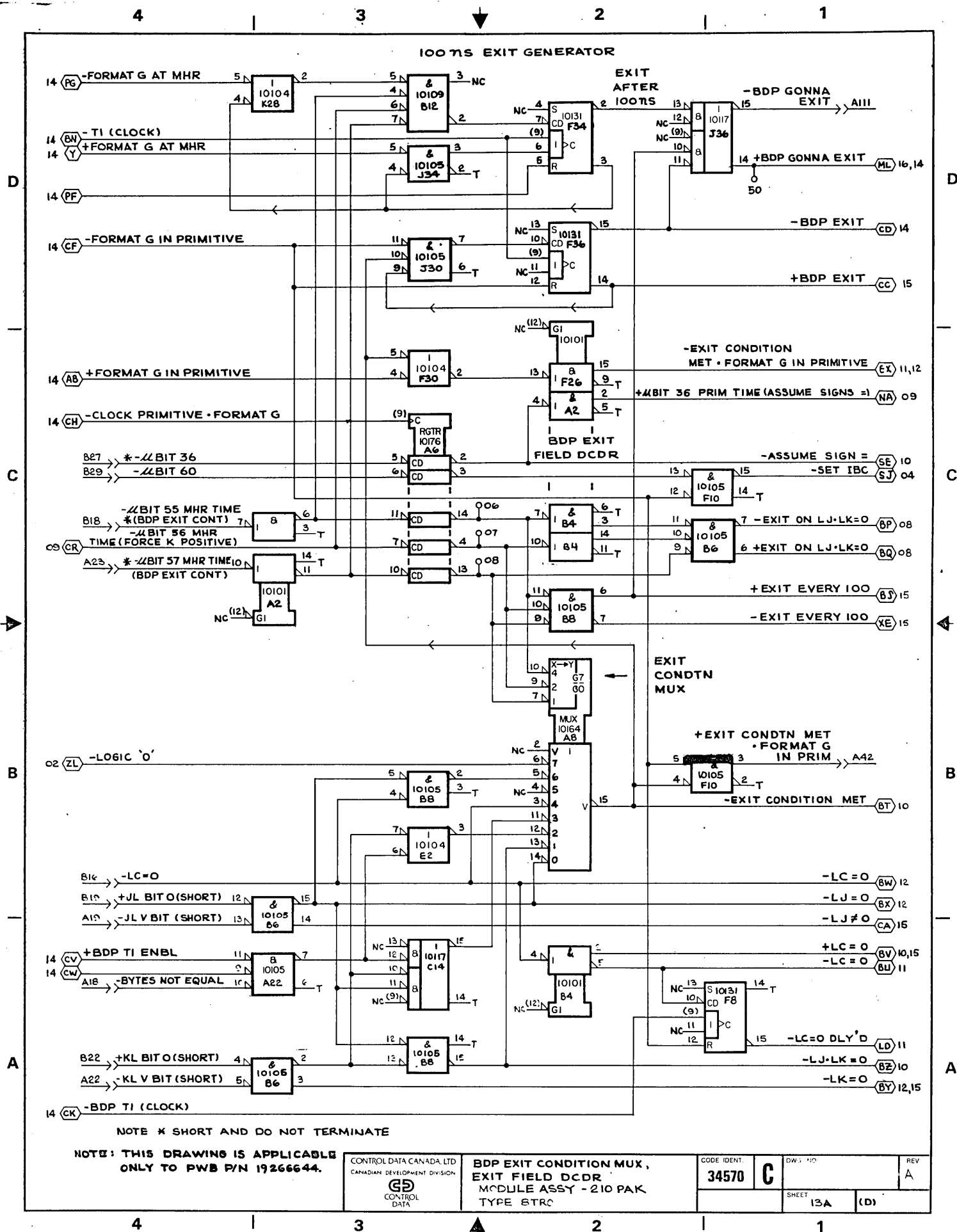
11

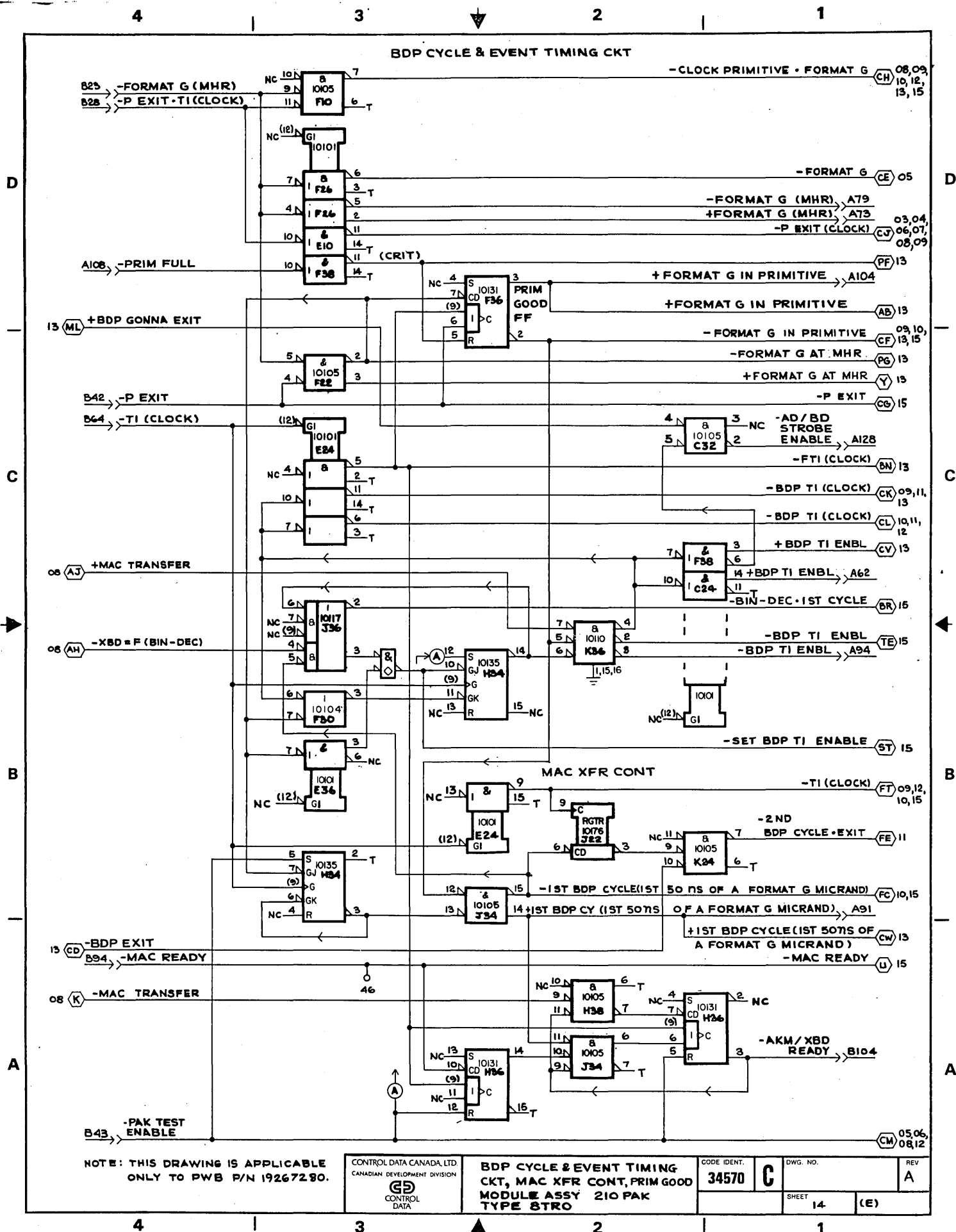
(B)











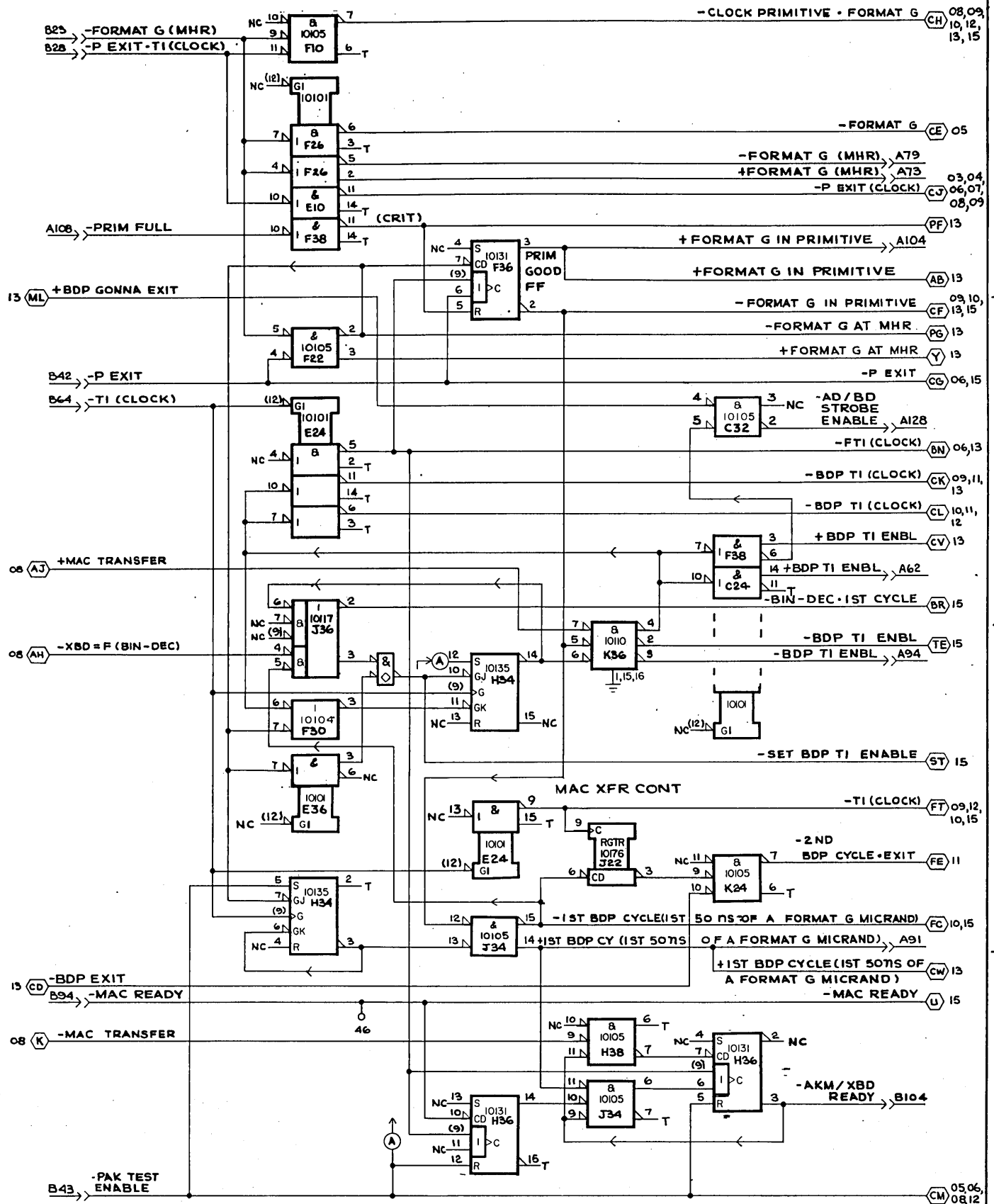
4

3

2

1

## BDP CYCLE &amp; EVENT TIMING CKT



NOTE: THIS DRAWING IS APPLICABLE  
ONLY TO PWB P/N 19266644.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



BDP CYCLE & EVENT TIMING  
CKT, MAC XFR CONT, PRIM GOOD  
MODULE ASSY 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG NO

C

REV

A

SHEET

14-A

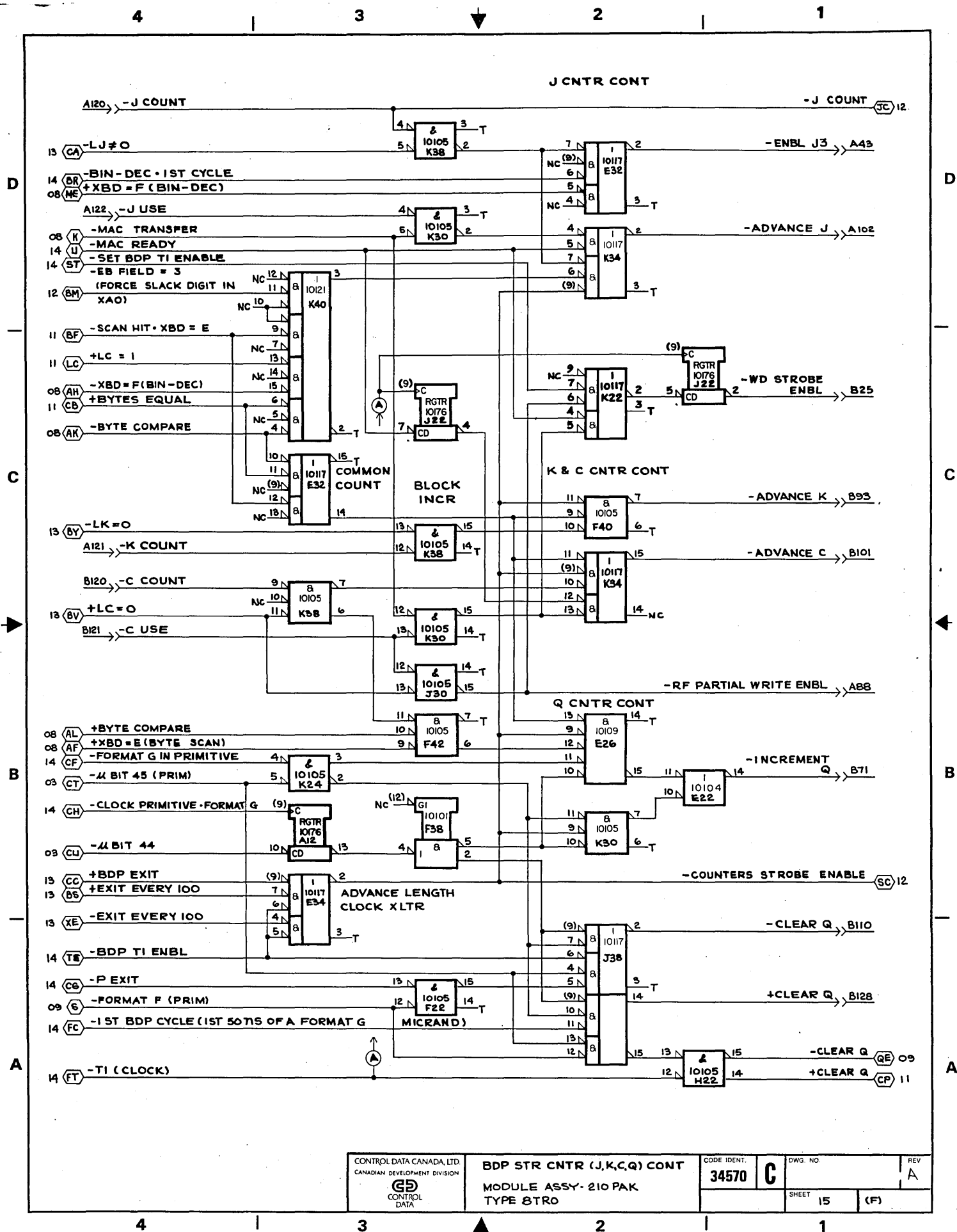
(E)

4

3

2

1

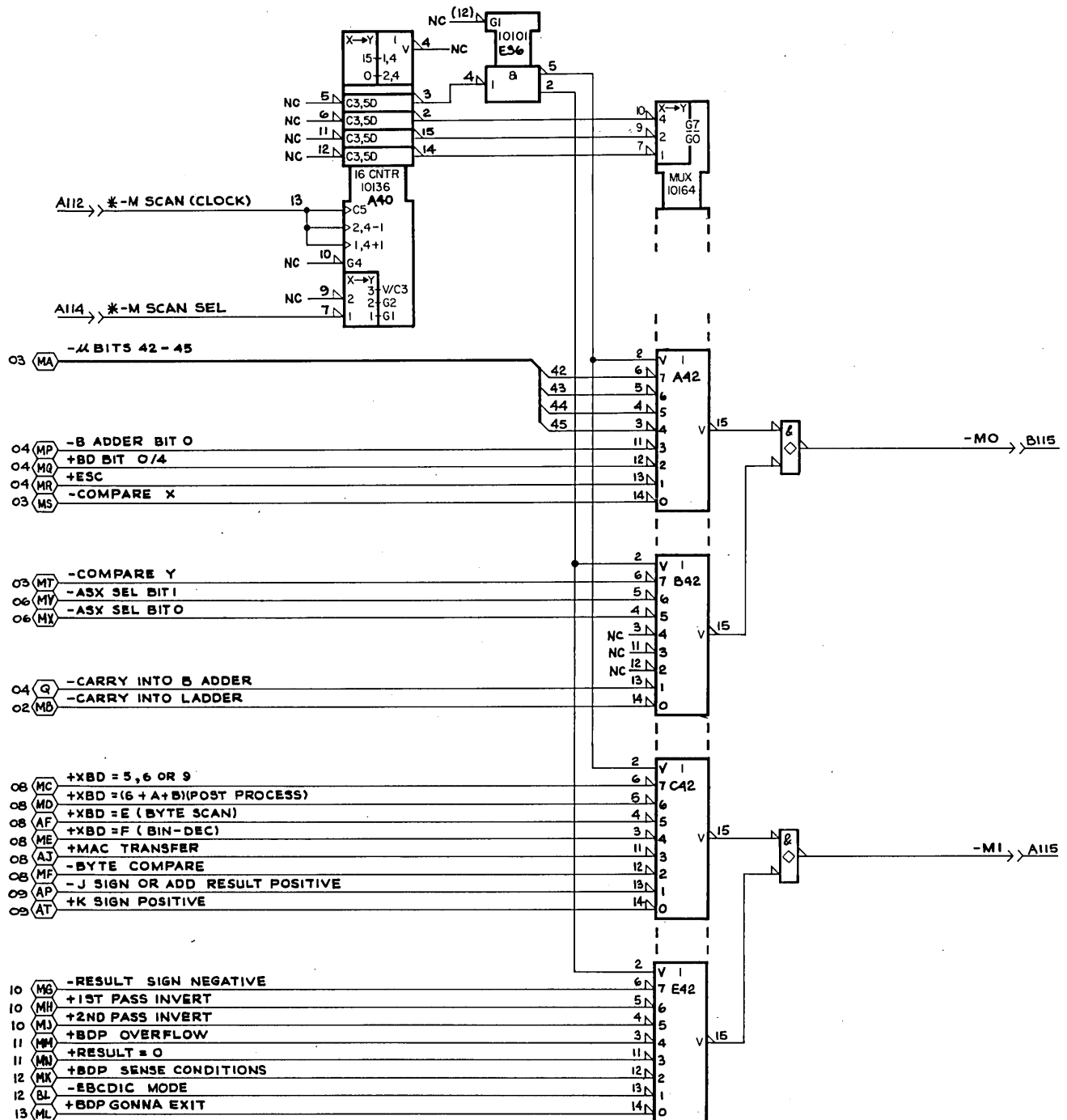


4

3

2

1



NOTE: \* DO NOT TERMINATE

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
**GD**  
CONTROL DATA

## MAINT SCAN

MODULE ASSY - 210 PAK  
TYPE BTRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET 16

(G)

# XBD SELECT ROM FOR 8TRO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 B38 19266839

## ADDR CONTENTS

00 0  
01 0  
02 0  
03 3  
04 0  
05 5  
06 6  
07 0  
08 0  
09 5  
0A A  
0B A  
0C C  
0D F  
0E 0  
0F C  
10 5  
11 0  
12 0  
13 3  
14 0  
15 5  
16 9  
17 0  
18 0  
19 5  
1A A  
1B A  
1C C  
1D F  
1E 0  
1F C  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0  
26 0  
27 0  
28 0  
29 0  
2A 0  
2B 0  
2C 0  
2D 0  
2E 0  
2F 0  
30 0  
31 0  
32 0  
33 0  
34 0  
35 0  
36 0  
37 0  
38 0  
39 0  
3A 0  
3B 0  
3C 0  
3D 0  
3E 0  
3F 0

## ADDR CONTENTS

40 0  
41 0  
42 0  
43 0  
44 0  
45 0  
46 0  
47 0  
48 0  
49 0  
4A 0  
4B 0  
4C 0  
4D 0  
4E 0  
4F 0  
50 0  
51 0  
52 0  
53 0  
54 0  
55 0  
56 0  
57 0  
58 0  
59 0  
5A 0  
5B 0  
5C 0  
5D 0  
5E 0  
5F 0  
60 0  
61 0  
62 0  
63 0  
64 0  
65 0  
66 0  
67 0  
68 0  
69 0  
6A 0  
6B 0  
6C 0  
6D 0  
6E 0  
6F 0  
70 0  
71 0  
72 0  
73 0  
74 0  
75 0  
76 0  
77 0  
78 0  
79 0  
7A 0  
7B 0  
7C 0  
7D 0  
7E 0  
7F 0

## ADDR CONTENTS

80 0  
81 0  
82 0  
83 0  
84 0  
85 0  
86 0  
87 0  
88 0  
89 0  
8A 0  
8B 0  
8C 0  
8D 0  
8E 0  
8F 0  
90 0  
91 0  
92 0  
93 0  
94 0  
95 0  
96 0  
97 0  
98 0  
99 0  
9A 0  
9B 0  
9C 0  
9D 0  
9E 0  
9F 0  
A0 0  
A1 0  
A2 0  
A3 0  
A4 0  
A5 0  
A6 0  
A7 0  
A8 0  
A9 0  
AA 0  
AB 0  
AC 0  
AD 0  
AE 0  
AF 0  
B0 0  
B1 0  
B2 0  
B3 0  
B4 0  
B5 0  
B6 0  
B7 0  
B8 0  
B9 0  
BA 0  
BB 0  
BC 0  
BD 0  
BE 0  
BF 0

## ADDR CONTENTS

C0 0  
C1 0  
C2 0  
C3 0  
C4 0  
C5 0  
C6 0  
C7 0  
C8 0  
C9 0  
CA 0  
CB 0  
CC 0  
CD 0  
CE 0  
CF 0  
D0 0  
D1 0  
D2 0  
D3 0  
D4 0  
D5 0  
D6 0  
D7 0  
D8 0  
D9 0  
DA 0  
DB 0  
DC 0  
DD 0  
DE 0  
DF 0  
E0 0  
E1 0  
E2 0  
E3 3  
E4 0  
E5 5  
E6 6  
E7 0  
E8 0  
E9 5  
EA A  
EB C  
EC C  
ED F  
EE 0  
EF C  
F0 5  
F1 0  
F2 0  
F3 3  
F4 0  
F5 5  
F6 9  
F7 0  
F8 0  
F9 5  
FA A  
FB A  
FC C  
FD F  
FE 0  
FF C

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



CONTROL  
DATA

XBD SELECT ROM FOR 8TRO  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

17



4

3

2

1

## BD SELECT ROM FOR BYTES 0,1 8TRO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 A30 19266836

## ADDR CONTENTS

00 8  
01 2  
02 8  
03 2  
04 8  
05 2  
06 1  
07 2  
08 8  
09 2  
0A 8  
0B 2  
0C 8  
0D 2  
0E 8  
0F 2  
10 8  
11 8  
12 8  
13 8  
14 8  
15 8  
16 8  
17 8  
18 8  
19 8  
1A 8  
1B 8  
1C 8  
1D 8  
1E 8  
1F 8  
20 8  
21 2  
22 8  
23 2  
24 8  
25 2  
26 1  
27 2  
28 8  
29 2  
2A 8  
2B 2  
2C 8  
2D 2  
2E 8  
2F 2  
30 8  
31 8  
32 8  
33 8  
34 8  
35 8  
36 8  
37 8  
38 8  
39 8  
3A 8  
3B 8  
3C 8  
3D 8  
3E 8  
3F 8

## ADDR CONTENTS

40 7  
41 2  
42 7  
43 2  
44 7  
45 2  
46 D  
47 2  
48 7  
49 2  
4A 7  
4B 2  
4C 7  
4D 2  
4E 7  
4F 2  
50 8  
51 8  
52 8  
53 8  
54 8  
55 8  
56 8  
57 8  
58 8  
59 8  
5A 8  
5B 8  
5C 8  
5D 8  
5E 8  
5F 8  
60 1  
61 2  
62 1  
63 2  
64 1  
65 2  
66 1  
67 2  
68 1  
69 2  
6A 1  
6B 2  
6C 1  
6D 2  
6E 1  
6F 2  
70 8  
71 8  
72 8  
73 8  
74 8  
75 8  
76 8  
77 8  
78 8  
79 8  
7A 8  
7B 8  
7C 8  
7D 8  
7E 8  
7F 8

## ADDR CONTENTS

80 8  
81 2  
82 8  
83 2  
84 8  
85 2  
86 1  
87 2  
88 8  
89 2  
8A 8  
8B 2  
8C 8  
8D 2  
8E 8  
8F 2  
90 8  
91 8  
92 8  
93 8  
94 8  
95 8  
96 8  
97 8  
98 8  
99 8  
9A 8  
9B 8  
9C 8  
9D 8  
9E 8  
9F 8  
A0 8  
A1 2  
A2 8  
A3 2  
A4 8  
A5 2  
A6 1  
A7 2  
A8 8  
A9 2  
AA 8  
AB 2  
AC 8  
AD 2  
AE 8  
AF 2  
B0 8  
B1 8  
B2 8  
B3 8  
B4 8  
B5 8  
B6 8  
B7 8  
B8 8  
B9 8  
BA 8  
BB 8  
BC 8  
BD 8  
BE 8  
BF 8

## ADDR CONTENTS

C0 7  
C1 2  
C2 7  
C3 2  
C4 7  
C5 2  
C6 D  
C7 2  
C8 8  
C9 2  
CA 7  
CB 2  
CC 7  
CD 2  
CE 7  
CF 2  
D0 8  
D1 8  
D2 8  
D3 8  
D4 8  
D5 8  
D6 8  
D7 8  
D8 8  
D9 8  
DA 8  
DB 8  
DC 8  
DD 8  
DE 8  
DF 8  
E0 1  
E1 2  
E2 1  
E3 2  
E4 1  
E5 2  
E6 1  
E7 2  
E8 1  
E9 2  
EA 1  
EB 2  
EC 1  
ED 2  
EE 1  
EF 2  
F0 8  
F1 8  
F2 8  
F3 8  
F4 8  
F5 8  
F6 8  
F7 8  
F8 8  
F9 8  
FA 8  
FB 8  
FC 8  
FD 8  
FE 8  
FF 8

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
  
CONTROL  
DATA

BD SELECT ROM FOR BYTES 0,1  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

18

4

3

2

1

4

3

2

1

BD SELECT ROM FOR BYTES 2,3 8TRO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 C36 19266837

ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS
00 B	40 7	80 B	C0 7
01 2	41 2	81 2	C1 2
02 B	42 7	82 B	C2 7
03 2	43 2	83 2	C3 2
04 B	44 7	84 B	C4 7
05 2	45 2	85 2	C5 2
06 1	46 D	86 1	C6 D
07 2	47 2	87 2	C7 2
08 B	48 7	88 B	C8 7
09 2	49 2	89 2	C9 2
0A B	4A 7	8A B	CA 7
0B 2	4B 2	8B 2	CB 2
0C B	4C 7	8C B	CC 7
0D 2	4D 2	8D 2	CD 2
0E B	4E 7	8E B	CE 7
0F 2	4F 2	8F 2	CF 2
10 B	50 8	90 B	D0 8
11 B	51 8	91 B	D1 8
12 B	52 8	92 B	D2 8
13 B	53 8	93 B	D3 8
14 B	54 8	94 B	D4 8
15 B	55 8	95 B	D5 8
16 B	56 8	96 B	D6 8
17 B	57 8	97 B	D7 8
18 B	58 8	98 B	D8 8
19 B	59 8	99 B	D9 8
1A B	5A 8	9A B	DA 8
1B B	5B 8	9B B	DB 8
1C B	5C 8	9C B	DC 8
1D B	5D 8	9D B	DD 8
1E B	5E 8	9E B	DE 8
1F B	5F 8	9F B	DF 8
20 7	60 1	A0 7	E0 1
21 2	61 2	A1 2	E1 2
22 7	62 1	A2 7	E2 1
23 2	63 2	A3 2	E3 1
24 7	64 1	A4 7	E4 1
25 2	65 2	A5 2	E5 2
26 D	66 1	A6 D	E6 1
27 2	67 2	A7 2	E7 2
28 7	68 1	A8 7	E8 1
29 2	69 2	A9 2	E9 2
2A 7	6A 1	AA 7	EA 1
2B 2	6B 2	AB 2	EB 2
2C 7	6C 1	AC 7	EC 1
2D 2	6D 2	AD 2	ED 2
2E 7	6E 1	AE 7	EE 1
2F 2	6F 2	AF 2	EF 2
30 B	70 8	80 B	FF 8
31 B	71 8	81 B	
32 B	72 8	82 B	
33 B	73 8	83 B	
34 B	74 8	84 B	
35 B	75 8	85 B	
36 B	76 8	86 B	
37 B	77 8	87 B	
38 B	78 8	88 B	
39 B	79 8	89 B	
3A B	7A 8	8A B	
3B B	7B 8	8B B	
3C B	7C 8	8C B	
3D B	7D 8	8D B	
3E B	7E 8	8E B	
3F B	7F 8	8F B	

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



BD SELECT ROM FOR BYTES 2,3  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.  
34570

DWG. NO.

C

REV  
A

SHEET

19

4

3

2

1

4

3

2

1

BD SELECT ROM FOR BYTES 4,5,6,7 8TRO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 A36 19266838

ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS
00 F	40 F	80 F	C0 F
01 A	41 A	81 A	C1 A
02 F	42 F	82 F	C2 F
03 A	43 A	83 A	C3 A
04 F	44 F	84 F	C4 F
05 A	45 A	85 A	C5 A
06 5	46 5	86 5	C6 5
07 A	47 A	87 A	C7 A
08 F	48 F	88 F	C8 F
09 A	49 A	89 A	C9 A
0A F	4A F	8A F	CA F
0B A	4B A	8B A	CB A
0C F	4C F	8C F	CC F
0D A	4D A	8D A	CD A
0E F	4E F	8E F	CE F
0F A	4F A	8F A	CF A
10 0	50 0	90 0	D0 0
11 0	51 0	91 0	D1 0
12 0	52 0	92 0	D2 0
13 0	53 0	93 0	D3 0
14 0	54 0	94 0	D4 0
15 0	55 0	95 0	D5 0
16 0	56 0	96 0	D6 0
17 0	57 0	97 0	D7 0
18 0	58 0	98 0	D8 0
19 0	59 0	99 0	D9 0
1A 0	5A 0	9A 0	DA 0
1B 0	5B 0	9B 0	DB 0
1C 0	5C 0	9C 0	DC 0
1D 0	5D 0	9D 0	DD 0
1E 0	5E 0	9E 0	DE 0
1F 0	5F 0	9F 0	DF 0
20 F	60 5	A0 F	E0 5
21 A	61 A	A1 A	E1 A
22 F	62 5	A2 F	E2 5
23 A	63 A	A3 A	E3 A
24 F	64 5	A4 F	E4 5
25 A	65 A	A5 A	E5 A
26 5	66 5	A6 5	E6 5
27 A	67 A	A7 A	E7 A
28 F	68 5	A8 F	E8 5
29 A	69 A	A9 A	E9 A
2A F	6A 5	AA F	EA 5
2B A	6B A	AB A	EB A
2C F	6C 5	AC F	EC 5
2D A	6D A	AD A	ED A
2E F	6E 5	AE F	EE 5
2F A	6F A	AF A	EF A
30 0	70 0	80 0	F0 0
31 0	71 0	81 0	F1 0
32 0	72 0	82 0	F2 0
33 0	73 0	83 0	F3 0
34 0	74 0	84 0	F4 0
35 0	75 0	85 0	F5 0
36 0	76 0	86 0	F6 0
37 0	77 0	87 0	F7 0
38 0	78 0	88 0	F8 0
39 0	79 0	89 0	F9 0
3A 0	7A 0	8A 0	FA 0
3B 0	7B 0	8B 0	FB 0
3C 0	7C 0	8C 0	FC 0
3D 0	7D 0	8D 0	FD 0
3E 0	7E 0	8E 0	FE 0
3F 0	7F 0	8F 0	FF 0

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



BD SELECT ROM FOR BYTES 4,5,6,7

MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

20

4

3

2

1

4

3

2

1

AD SELECT ROM FOR BYTES 0,1 8TRO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 C26 19266834

ADDR CONTENTS

ADDR CONTENTS

ADDR CONTENTS

ADDR CONTENTS

00 D  
01 D  
02 D  
03 D  
04 D  
05 D  
06 D  
07 D  
08 D  
09 D  
0A D  
0B D  
0C D  
0D D  
0E D  
0F D  
10 D  
11 D  
12 D  
13 D  
14 D  
15 D  
16 D  
17 D  
18 D  
19 D  
1A D  
1B D  
1C D  
1D D  
1E D  
1F D  
20 4  
21 4  
22 4  
23 4  
24 2  
25 2  
26 2  
27 2  
28 4  
29 4  
2A 4  
2B 4  
2C 2  
2D 2  
2E 2  
2F 2  
30 4  
31 4  
32 4  
33 4  
34 2  
35 2  
36 2  
37 2  
38 4  
39 4  
3A 4  
3B 4  
3C 2  
3D 2  
3E 2  
3F 2

40 4  
41 4  
42 4  
43 4  
44 4  
45 4  
46 4  
47 4  
48 4  
49 8  
4A 4  
4B 4  
4C 4  
4D 8  
4E 4  
4F 4  
50 8  
51 8  
52 8  
53 8  
54 8  
55 8  
56 8  
57 8  
58 8  
59 8  
5A 8  
5B 8  
5C 8  
5D 8  
5E 8  
5F 8  
60 1  
61 1  
62 1  
63 1  
64 1  
65 1  
66 1  
67 1  
68 1  
69 1  
6A 1  
6B 1  
6C 1  
6D 1  
6E 1  
6F 1  
70 1  
71 1  
72 1  
73 1  
74 1  
75 1  
76 1  
77 1  
78 1  
79 1  
7A 1  
7B 1  
7C 1  
7D 1  
7E 1  
7F 1

80 B  
81 B  
82 B  
83 B  
84 B  
85 B  
86 B  
87 B  
88 B  
89 B  
8A B  
8B B  
8C B  
8D B  
8E B  
8F B  
90 B  
91 B  
92 B  
93 B  
94 B  
95 B  
96 B  
97 B  
98 B  
99 B  
9A B  
9B B  
9C B  
9D B  
9E B  
9F B  
A0 E  
A1 E  
A2 E  
A3 E  
A4 E  
A5 E  
A6 E  
A7 E  
A8 E  
A9 E  
AA E  
AB E  
AC E  
AD E  
AE E  
AF E  
B0 E  
B1 E  
B2 E  
B3 E  
B4 E  
B5 E  
B6 E  
B7 E  
B8 E  
B9 E  
BA E  
BB E  
BC E  
BD E  
BE E  
BF E

C0 7  
C1 7  
C2 7  
C3 7  
C4 7  
C5 7  
C6 7  
C7 7  
C8 7  
C9 7  
CA 7  
CB 7  
CC 7  
CD 7  
CE 7  
CF 7  
D0 7  
D1 7  
D2 7  
D3 7  
D4 7  
D5 7  
D6 7  
D7 7  
D8 7  
D9 7  
DA 7  
DB 7  
DC 7  
DD 7  
DE 7  
DF 7  
E0 4  
E1 4  
E2 4  
E3 4  
E4 4  
E5 4  
E6 4  
E7 4  
E8 4  
E9 8  
EA 4  
EB 4  
EC 4  
ED 8  
EE 4  
EF 4  
F0 8  
F1 8  
F2 8  
F3 8  
F4 8  
F5 8  
F6 8  
F7 8  
F8 8  
F9 8  
FA 8  
FB 8  
FC 8  
FD 8  
FE 8  
FF 8

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
  
CONTROL DATA

AD SELECT ROM FOR BYTES 0,1  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

21

4

3

2

1

4

3

2

1

## AD SELECT ROM FOR BYTES 2-7 8TRO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECEMAL

COL LOC P/N  
1 A26 19266835

## ADDR CONTENTS

00 D  
01 D  
02 D  
03 D  
04 D  
05 D  
06 D  
07 D  
08 D  
09 D  
0A D  
0B D  
0C D  
0D D  
0E D  
0F D  
10 D  
11 D  
12 D  
13 D  
14 D  
15 D  
16 D  
17 D  
18 D  
19 D  
1A D  
1B D  
1C D  
1D D  
1E D  
1F D  
20 4  
21 4  
22 4  
23 4  
24 4  
25 4  
26 4  
27 4  
28 4  
29 4  
2A 4  
2B 4  
2C 4  
2D 4  
2E 4  
2F 4  
30 4  
31 4  
32 4  
33 4  
34 4  
35 4  
36 4  
37 4  
38 4  
39 4  
3A 4  
3B 4  
3C 4  
3D 4  
3E 4  
3F 4

## ADDR CONTENTS

40 4  
41 4  
42 4  
43 4  
44 4  
45 4  
46 4  
47 4  
48 4  
49 4  
4A 8  
4B 8  
4C 4  
4D 4  
4E 4  
4F 4  
50 8  
51 8  
52 8  
53 8  
54 8  
55 8  
56 8  
57 8  
58 8  
59 8  
5A 8  
5B 8  
5C 8  
5D 8  
5E 8  
5F 8  
60 1  
61 1  
62 1  
63 1  
64 1  
65 1  
66 1  
67 1  
68 1  
69 1  
6A 1  
6B 1  
6C 1  
6D 1  
6E 1  
6F 1  
70 1  
71 1  
72 1  
73 1  
74 1  
75 1  
76 1  
77 1  
78 1  
79 1  
7A 1  
7B 1  
7C 1  
7D 1  
7E 1  
7F 1

## ADDR CONTENTS

80 8  
81 8  
82 8  
83 8  
84 8  
85 8  
86 8  
87 8  
88 8  
89 8  
8A 8  
8B 8  
8C 8  
8D 8  
8E 8  
8F 8  
90 8  
91 8  
92 8  
93 8  
94 8  
95 8  
96 8  
97 8  
98 8  
99 8  
9A 8  
9B 8  
9C 8  
9D 8  
9E 8  
9F 8  
A0 E  
A1 E  
A2 E  
A3 E  
A4 E  
A5 E  
A6 E  
A7 E  
A8 E  
A9 E  
AA E  
AB E  
AC E  
AD E  
AE E  
AF E  
B0 E  
B1 E  
B2 E  
B3 E  
B4 E  
B5 E  
B6 E  
B7 E  
B8 E  
B9 E  
BA E  
BB E  
BC E  
BD E  
BE E  
BF E

## ADDR CONTENTS

C0 7  
C1 7  
C2 7  
C3 7  
C4 7  
C5 7  
C6 7  
C7 7  
C8 7  
C9 7  
CA 7  
CB 7  
CC 7  
CD 7  
CE 7  
CF 7  
D0 7  
D1 7  
D2 7  
D3 7  
D4 7  
D5 7  
D6 7  
D7 7  
D8 7  
D9 7  
DA 7  
DB 7  
DC 7  
DD 7  
DE 7  
DF 7  
E0 4  
E1 4  
E2 4  
E3 4  
E4 4  
E5 4  
E6 4  
E7 4  
E8 4  
E9 4  
EA 8  
EB 8  
EC 4  
ED 4  
EE 4  
EF 4  
F0 8  
F1 8  
F2 8  
F3 8  
F4 8  
F5 8  
F6 8  
F7 8  
F8 8  
F9 8  
FA 8  
FB 8  
FC 8  
FD 8  
FE 8  
FF 8

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

AD SELECT ROM FOR BYTES 2-7  
MODULE ASSY - 210 PAK  
TYPE 8TRO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET 22

4

3

2

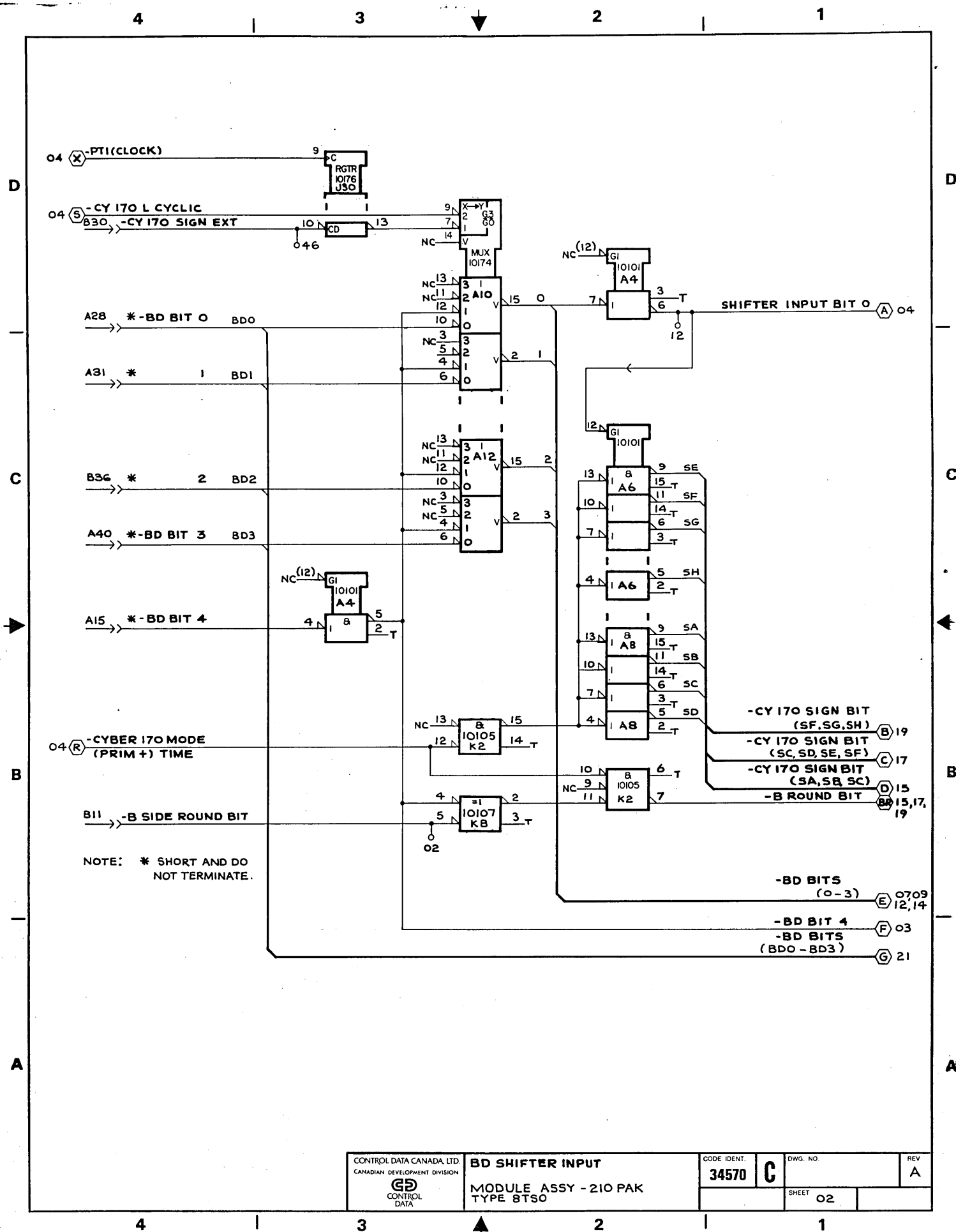
1

CC

C

C

C



4

3

2

1

-BD BITS  
4-15, 48-63  
(4-15, 48-63)

(H) 07,12

-BD BITS 16-47  
(16-47)

(J) 08,11

-BD BITS 4-31  
(4-31)

(K) 09,14

-BD BITS 32-63  
(32-63)

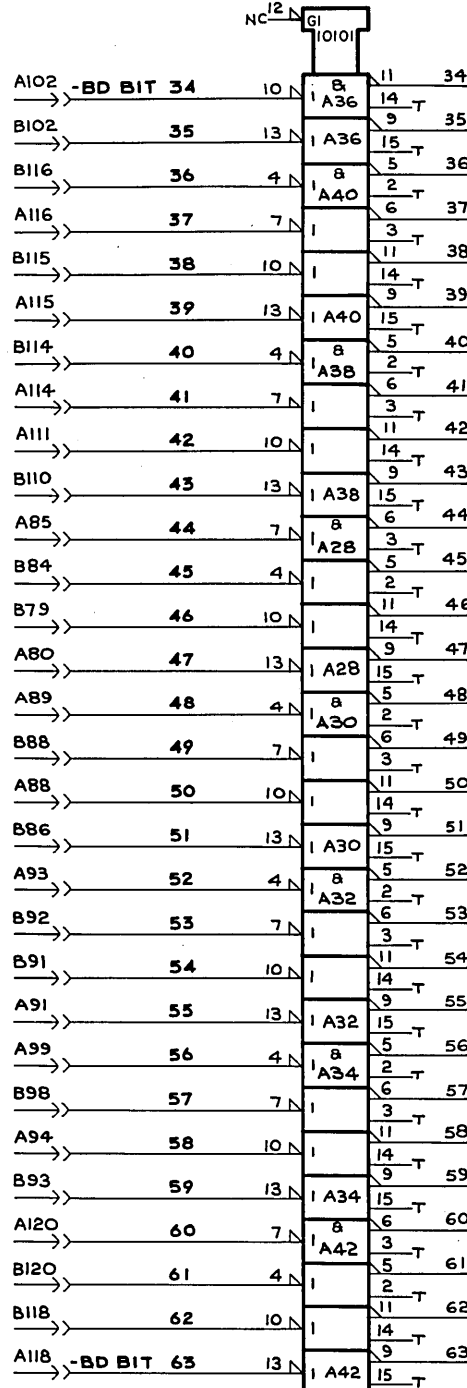
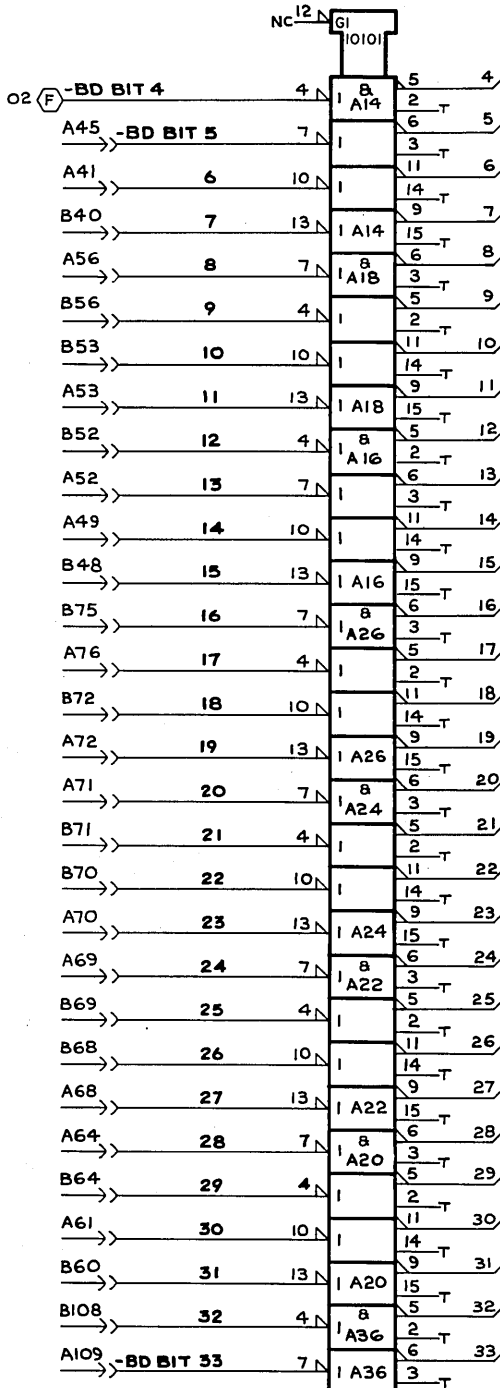
(L) 10,13

-BD BITS 16-63  
(16-63)

(M) 15,17,19

-BD BITS 4-63  
(4-63)

(MA) 21



NOTE:  
SHORT AND DO NOT TERMINATE  
ALL INPUT PINS.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



BD SHIFTER INPUTS

MODULE ASSY-210 PAK  
TYPE 8TSO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

03

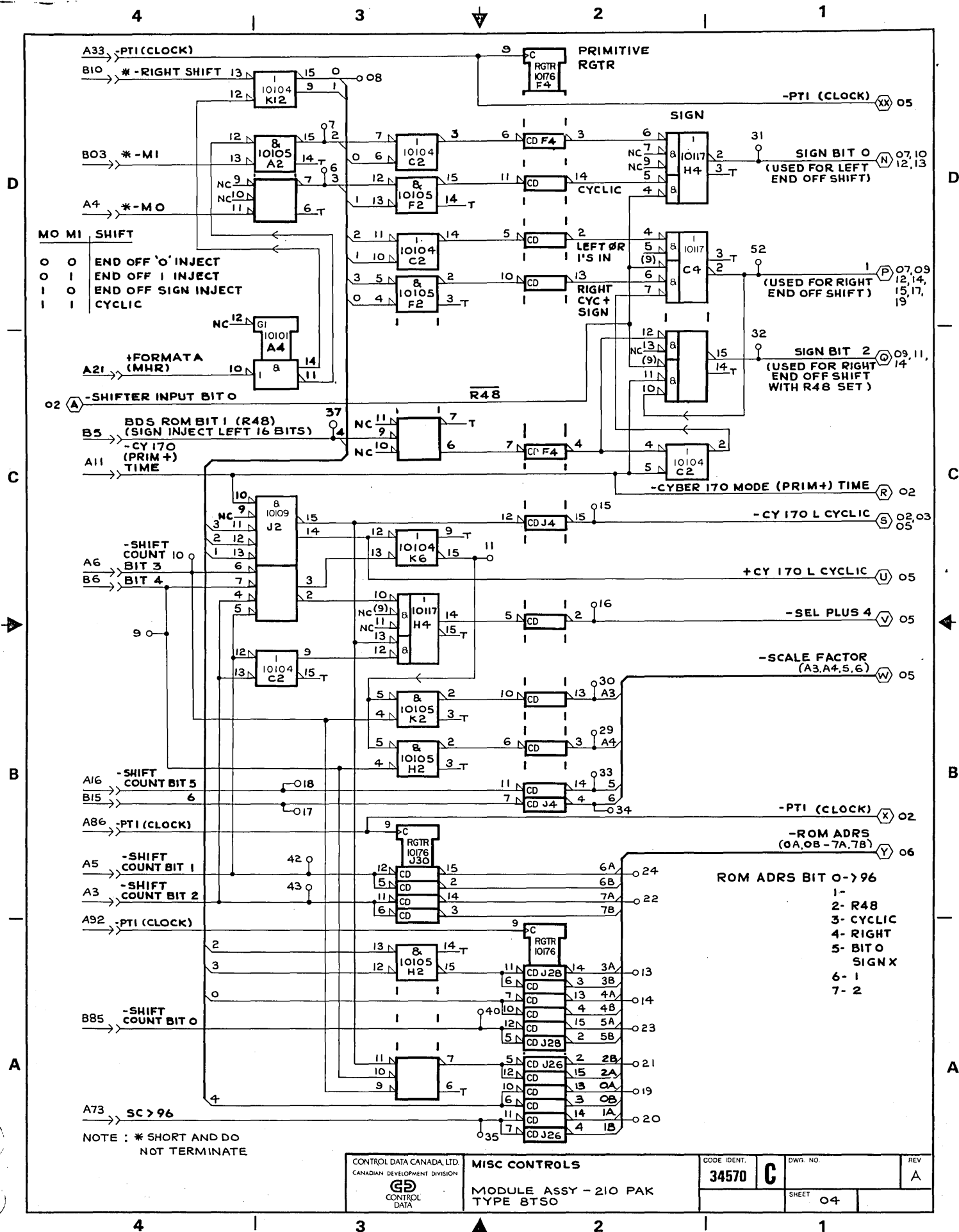
4

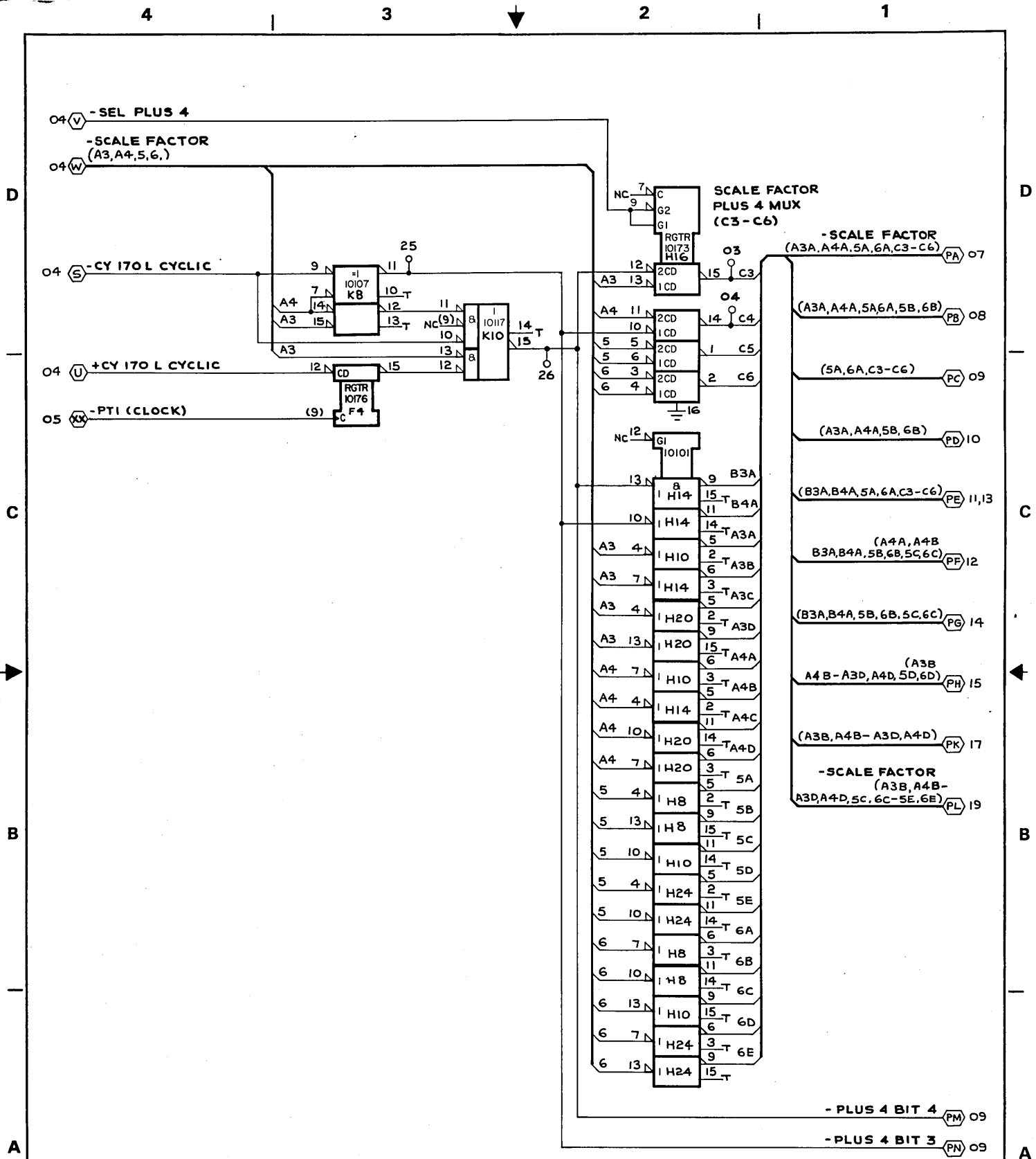
3

2

1







CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
**GD**  
CONTROL  
DATA

# **SCALE FACTOR**

MODULE ASSY - 210 PAK  
TYPE BT50

CODE IDENT.

**34570**

DWG. NO.

**C**

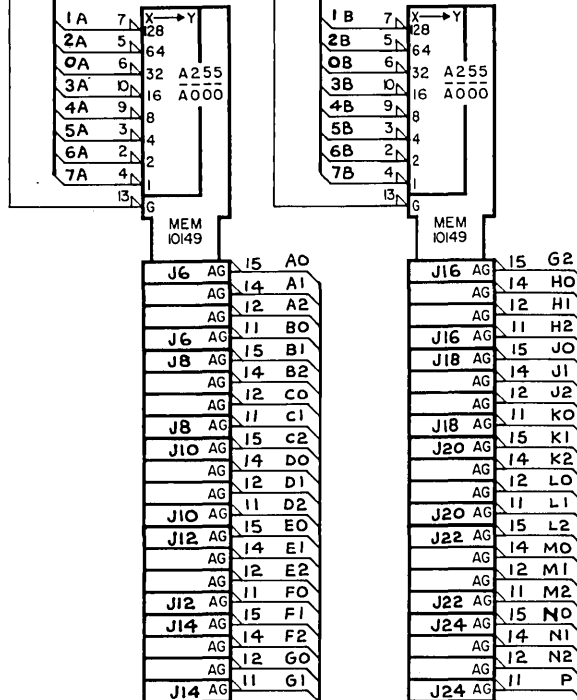
REV

**A**

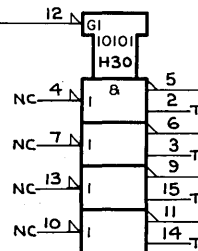
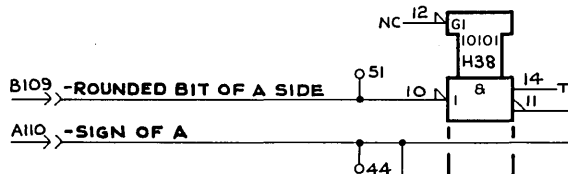
SHEET

**05**

04 (YA) (0A-7A,0B-7B) -ROM ADRS  
B27 -CONTROL ROM ENABLE  
(FOR PAKTEST)



-SHIFT TYPE  
(A0-A2,B0-D2) (RA) 07  
(B0-B2,E0-E2) (RB) 09  
(H0-H2,L0-L2) (RC) 08,10  
(J0-J2,L0-L2) (RD) 12  
(B0-B2,F0-F2) (RE) 11,13  
(K0-K2,M0-M2) (RF) 14  
(B0,F0,K0,N0-B2,F2,K2,N2) (RG) 15  
(C0,F0,K0,N0-C2,F2,K2,N2) (RH) 17  
(C0,G0,K0,N0-C2,G2,K2,N2) (RJ) 19  
-SHIFT TYPE  
(A0-A2) TO (N0-N2) P (RK) 22  
-ROUNDED BIT OF A SIDE (AA) 16



-SIGN OF A (AB) 16  
A (AC) 16  
A (AD) 18  
A (AE) 18  
A (AF) 20  
-SIGN OF A (AG) 20

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

ROM  
MODULE ASSY - 210 PAK  
TYPE 8T50

CODE IDENT.  
34570

C

DWG. NO.  
O6

SHEET

REV  
A

4

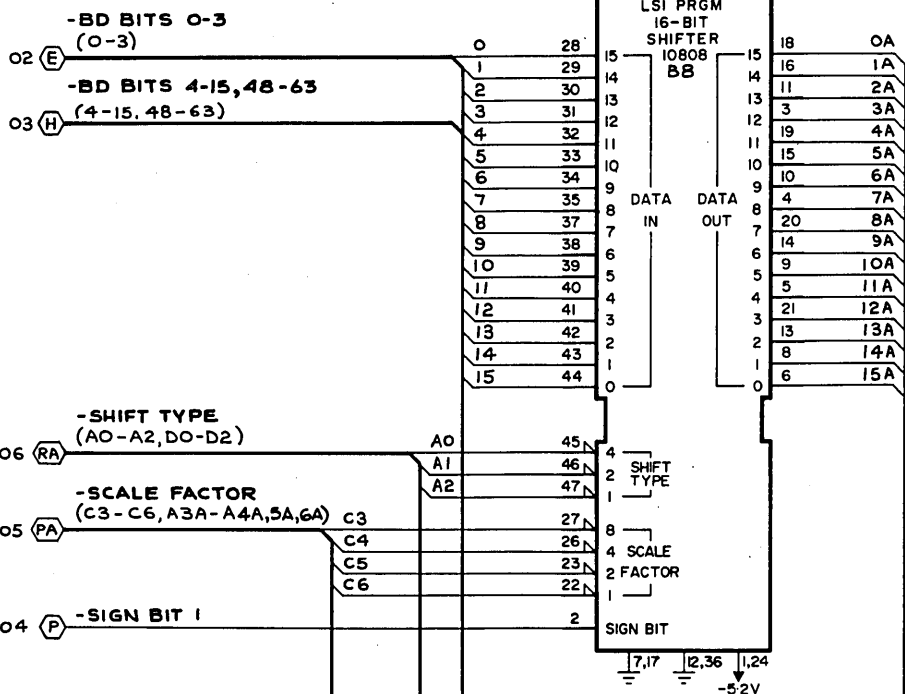
3

2

1

D

D

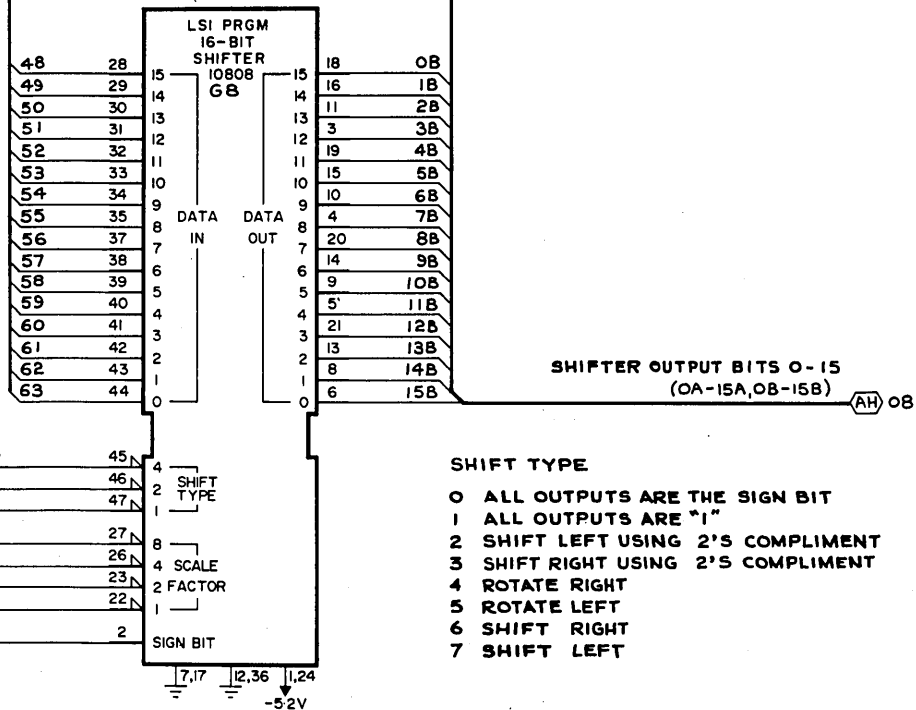


C

C

B

B



A

A

CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
GD  
CONTROL  
DATA

## SHIFTER BITS 0-15

MODULE ASSY - 210 PAK  
TYPE 8T50

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

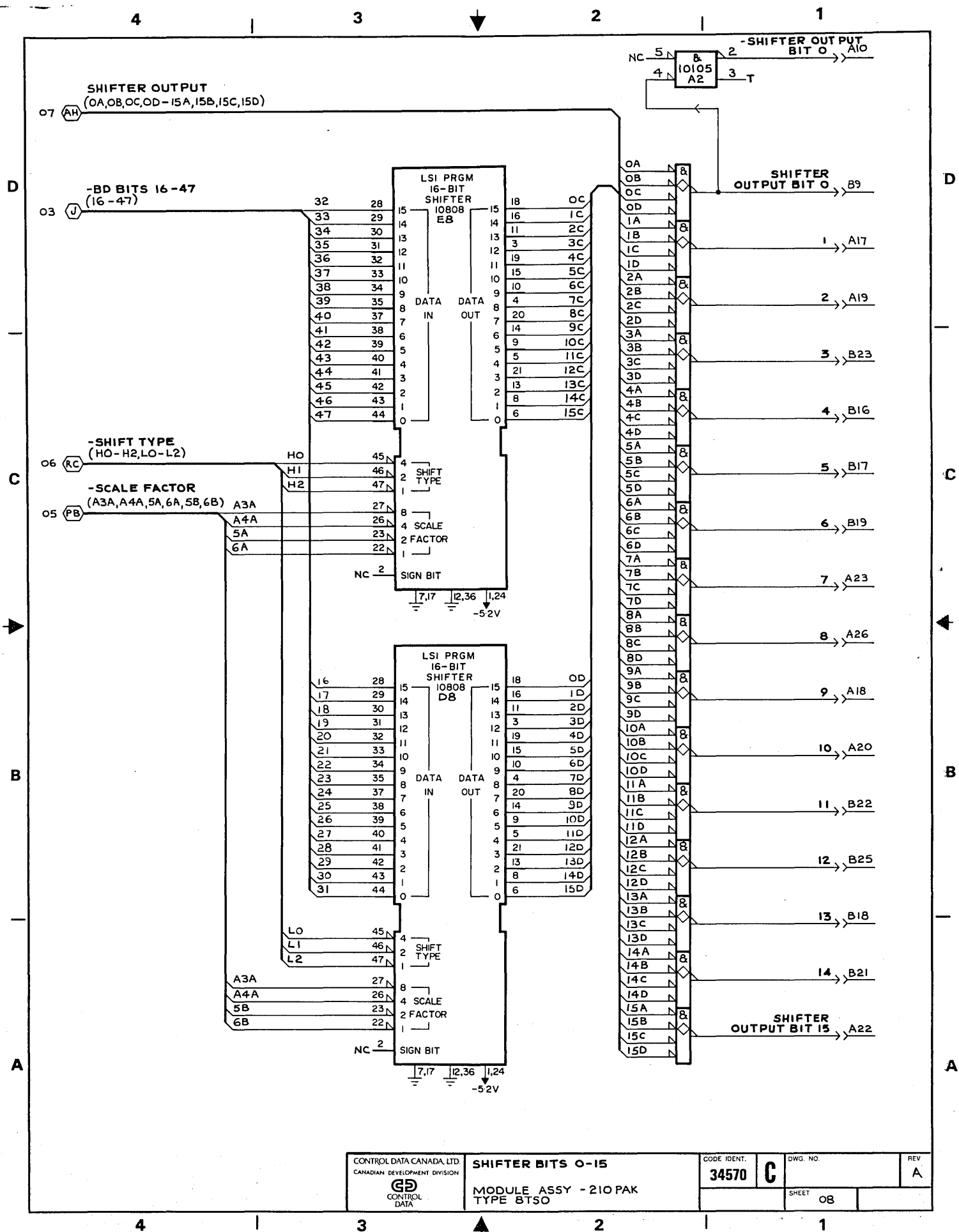
07

4

3

2

1



4

3

2

1

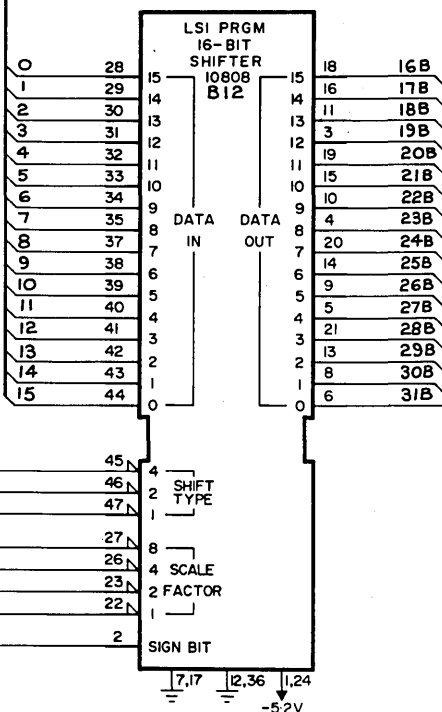
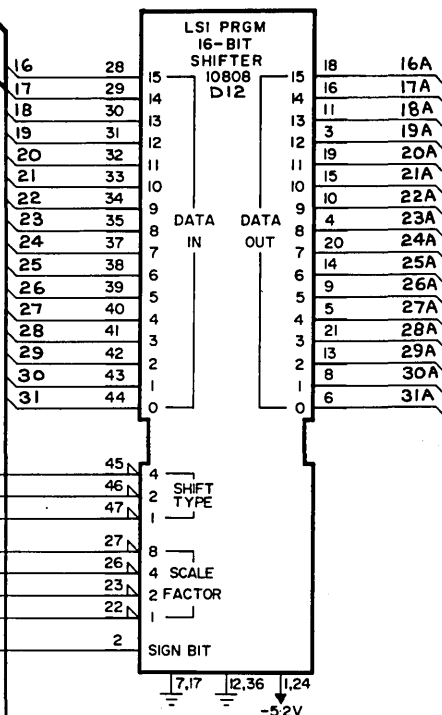
02 (E) -BD BITS 0-3  
(0-3)

03 (K) -BD BITS 4-31  
(4-31)

06 (RB) -SHIFT TYPE  
(B0-B2,E0-E2)

05 (PC) -SCALE FACTOR  
(5A,6A,C3-C6)

04 (Q) -SIGN BIT 2



SHIFTER OUTPUT BITS 16-31  
(16A-31A,16B-31B)

(AU) 10

05 (PN) -PLUS 4 BIT 3  
05 (PM) -PLUS 4 BIT 4

04 (P) -SIGN BIT 1

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

SHIFTER BITS 16-31

MODULE ASSY - 210 PAK  
TYPE BT50

CODE IDENT.

34570

DWG. NO.

C

REV

A.

SHEET

09

4

3

2

1

4

3

2

1

## SHIFTER OUTPUT BITS 16-31

(16A-31A, 16B-31B)

09 AU

## -BD BITS 32-63

(32-63)

03 L

## -SHIFT TYPE

(H0-H2, L0-L2)

06 RC

## -SCALE FACTOR

(A3A, A4A, 5B, 6B)

05 PD

## -SIGN BIT 0

04 N

LSI PRGM  
16-BIT  
SHIFTER  
10808  
G12

DATA IN

DATA OUT

SHIFT TYPE

SCALE

2 FACTOR

SIGN BIT

7,17 12,36 1,24  
-52VLSI PRGM  
16-BIT  
SHIFTER  
10808  
E12

DATA IN

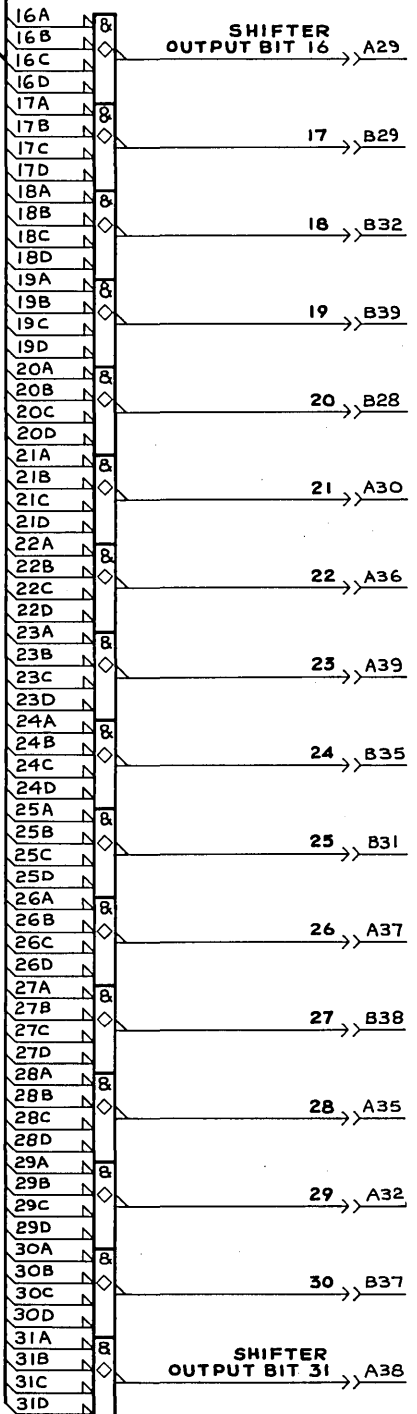
DATA OUT

SHIFT TYPE

SCALE

2 FACTOR

SIGN BIT

7,17 12,36 1,24  
-52V

CONTROL DATA CANADA, LTD.

CANADIAN DEVELOPMENT DIVISION



CONTROL DATA

## SHIFTER BITS 16-31

MODULE ASSY - 210 PAK  
TYPE 8T50

CODE IDENT.

34570

DWS. NO.

C

REV

A

SHEET

10

(A)

4

3

2

1

4

3

2

1

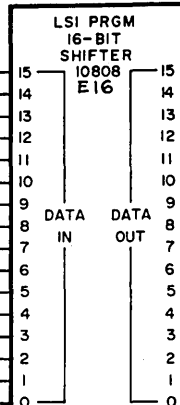
D

D

-BD BITS 16-47  
(16-47)

03 (J)

32 28  
33 29  
34 30  
35 31  
36 32  
37 33  
38 34  
39 35  
40 37  
41 38  
42 39  
43 40  
44 41  
45 42  
46 43  
47 44



18 32A  
16 33A  
11 34A  
3 35A  
19 36A  
15 37A  
10 38A  
4 39A  
20 40A  
14 41A  
9 42A  
5 43A  
21 44A  
13 45A  
8 46A  
6 47A

-SHIFT TYPE  
(B0-B2,F0-F2)

06 (RE)

B0

B1

B2

45 4  
46 2  
47 1

SHIFT TYPE

-SCALE FACTOR  
(B3A,B4A,5A,6A,C3-C6)

05 (PE)

C3

C4

C5

C6

27 8  
26 4  
23 2  
22 1

SCALE FACTOR

NC

SIGN BIT

7,17 12,36 1,24  
-52V

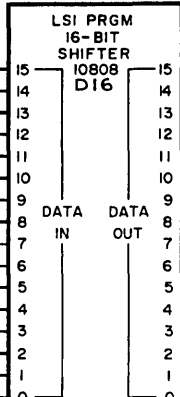
C

C

B

B

16 28  
17 29  
18 30  
19 31  
20 32  
21 33  
22 34  
23 35  
24 37  
25 38  
26 39  
27 40  
28 41  
29 42  
30 43  
31 44



18 32B  
16 33B  
11 34B  
3 35B  
19 36B  
15 37B  
10 38B  
4 39B  
20 40B  
14 41B  
9 42B  
5 43B  
21 44B  
13 45B  
8 46B  
6 47B

SHIFTER OUTPUT BITS 32-47  
(32A-47A,32B-47B)

(AK) 12

F0

F1

F2

45 4  
46 2  
47 1

SHIFT TYPE

B3A

B4A

5A

6A

27 8  
26 4  
23 2  
22 1

SCALE FACTOR

SIGN BIT

-SIGN BIT 1

04 (Q)

7,17 12,36 1,24  
-52V

A

A

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



SHIFTER BITS 32-47

MODULE ASSY - 210 PAK  
TYPE 8T50

CODE IDENT.

34570

DWG NO

C

REV

A

SHEET

11

(B)

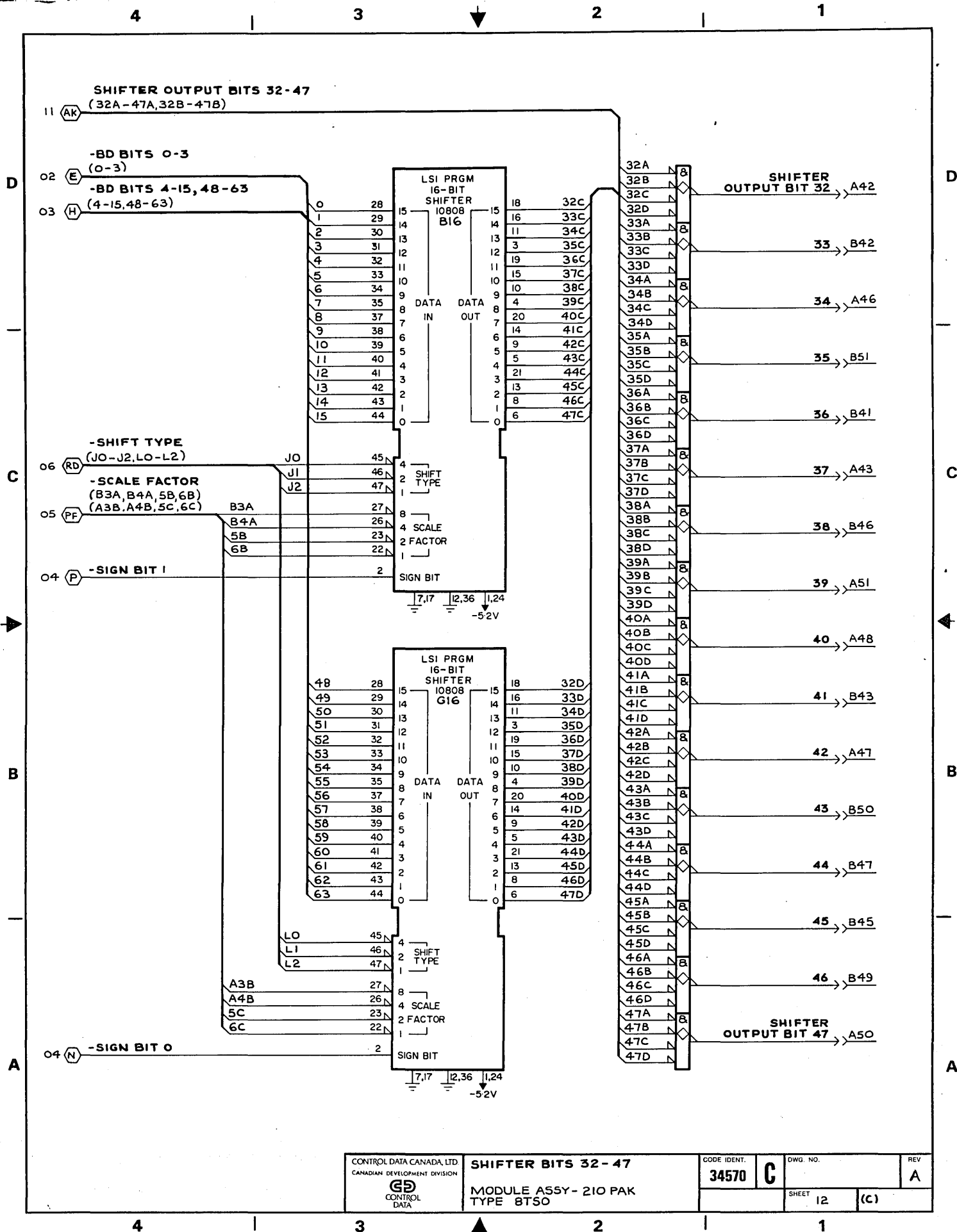
4

3

2

1





4

3

2

1

D

D

-BD BITS 32-63  
(32-63)

03 (L)

48 28  
49 29  
50 30  
51 31  
52 32  
53 33  
54 34  
55 35  
56 37  
57 38  
58 39  
59 40  
60 41  
61 42  
62 43  
63 44

LSI PRGM  
16-BIT  
SHIFTER  
10808  
G20

DATA IN

DATA OUT

18 48A  
16 49A  
11 50A  
3 51A  
19 52A  
15 53A  
10 54A  
4 55A  
20 56A  
14 57A  
9 58A  
5 59A  
21 60A  
13 61A  
8 62A  
6 63A

-SHIFT TYPE  
(B0-B2,FO-F2)

06 (RE)

B0

B1

B2

45

46

47

SHIFT TYPE

-SCALE FACTOR  
(B3A,B4A,5A,6A,C3-C6)

05 (PE)

C3

C4

C5

C6

27

26

23

22

SCALE FACTOR

-SIGN BIT 0

04 (N)

2

SIGN BIT

7,17 12,36 1,24  
-52V

C

C

B

B

A

A

32 28  
33 29  
34 30  
35 31  
36 32  
37 33  
38 34  
39 35  
40 37  
41 38  
42 39  
43 40  
44 41  
45 42  
46 43  
47 44

LSI PRGM  
16-BIT  
SHIFTER  
10808  
E20

DATA IN

DATA OUT

18 48B  
16 49B  
11 50B  
3 51B  
19 52B  
15 53B  
10 54B  
4 55B  
20 56B  
14 57B  
9 58B  
5 59B  
21 60B  
13 61B  
8 62B  
6 63B

SHIFTER OUTPUT BITS 48-63  
(48A-63A,48B-63B)

(AL) 13

FO

F1

F2

45

46

47

SHIFT TYPE

B3A

B4A

5A

6A

27

26

23

22

SCALE FACTOR

NC

2

SIGN BIT

7,17 12,36 1,24  
-52V

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



SHIFTER BITS 48-63

MODULE ASSY - 210 PAK  
TYPE BT50

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET 13

(D)

4

3

2

1

4

3

2

1

# SHIFTER OUTPUT BITS 48-63 (48A-63A, 48B-63B)

13 (AL)

-BD BITS 0-3  
(0-3)

02 (E)

-BD BITS 4-31  
(4-31)

03 (K)

-SHIFT TYPE  
(KO-K2, MO-M2)

06 (RF)

-SCALE FACTOR  
(B3A, B4A, 5B, 6B, 6C, 5C)

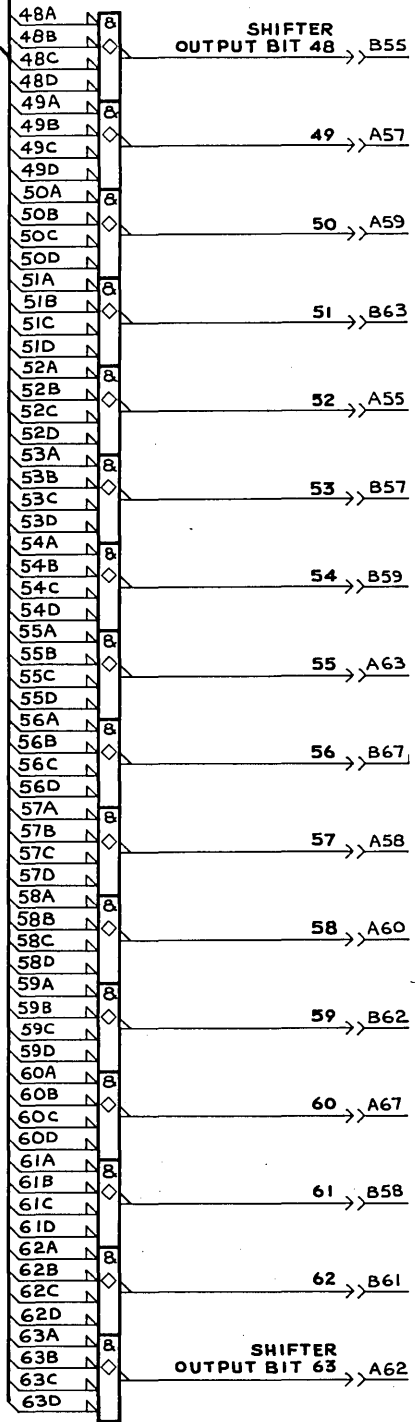
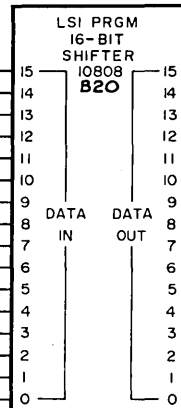
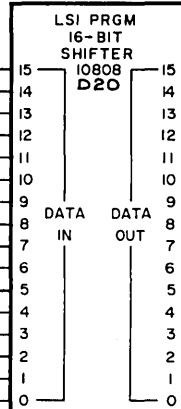
05 (PG)

-SIGN BIT 2

04 (Q)

-SIGN BIT 1

04 (P)



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

SHIFTER BITS 48-63

MODULE ASSY - 210 PAK  
TYPE BT50

CODE IDENT.

34570

DWG NO.

C

REV

A

SHEET

14

(E)

4

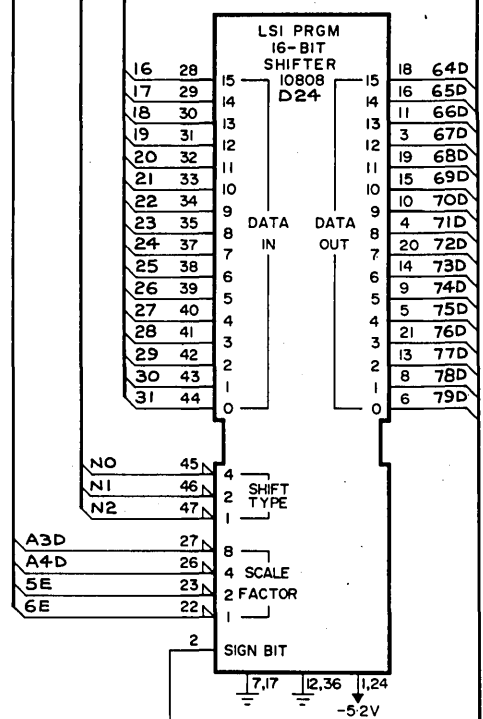
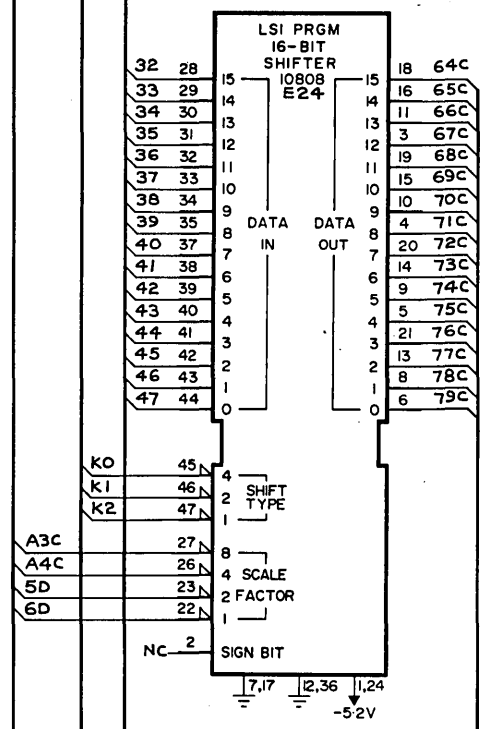
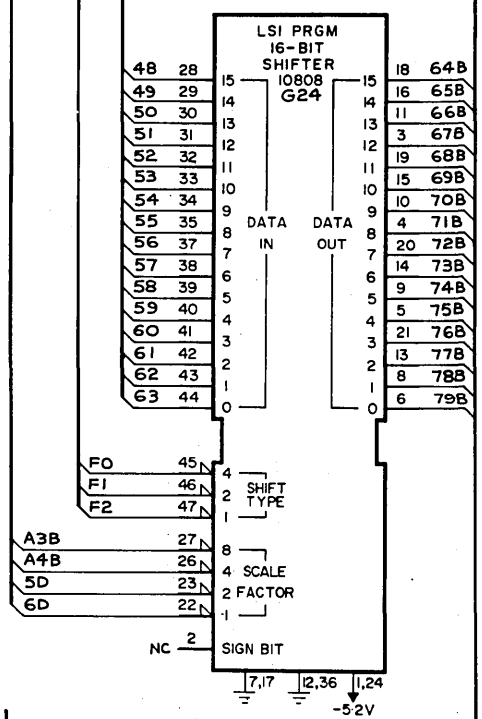
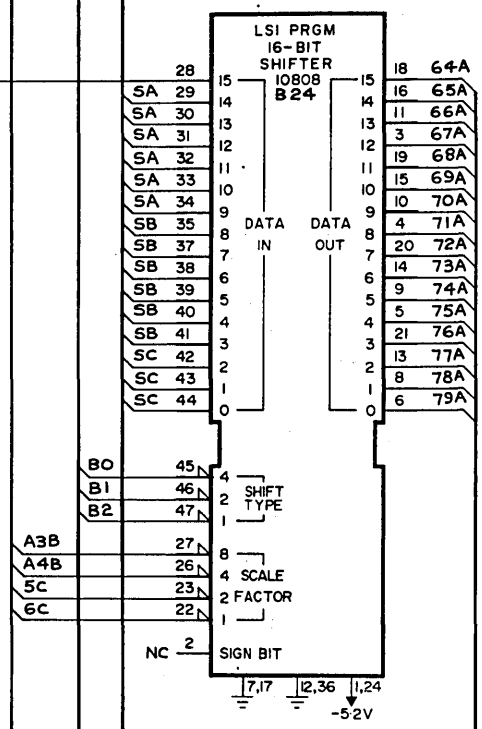
3

2

1

4 3 2 1

- BD BITS 16-63 (16-63)
- 03 M -CY 170 SIGN BIT (SA, SB, SC)
- 02 D -SHIFT TYPE (B,FK,NO-B,FK,N2)
- 06 R6 -SCALE FACTOR (5C,6C-5E,6E, A3B, A4B-A3D, A4D)
- 05 PH -B ROUND BIT



04 P -SIGN BIT 1

SHIFTER BITS  
(64A,B,C,D-79A,B,C,D) AM 16

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

SHIFTER  
MODULE ASSY - 210 PAK  
TYPE B7SO

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET 15

(F)

4 3 2 1



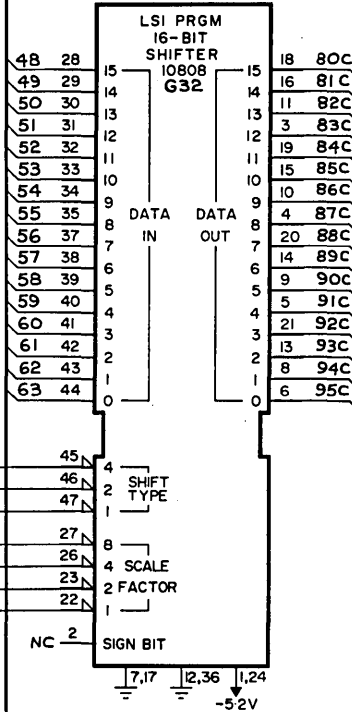
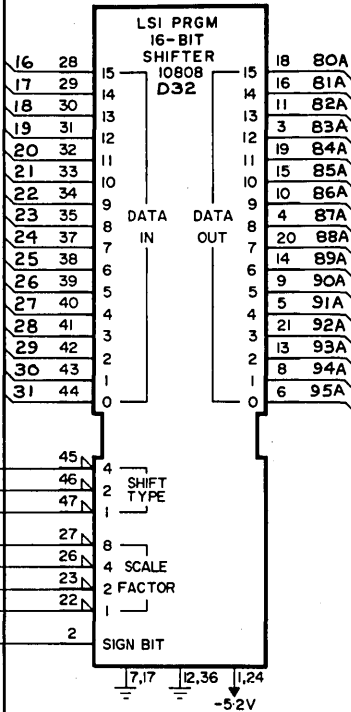
4

3

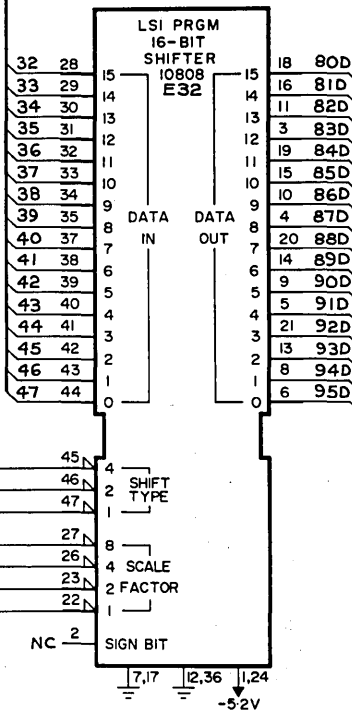
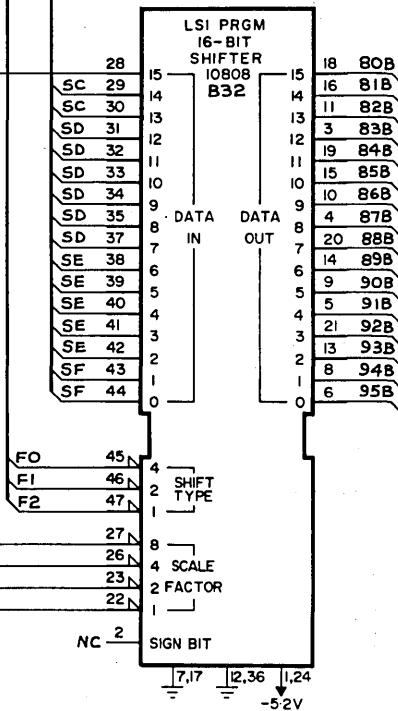
2

1

- 03 (M) -BD BITS 16-63  
 -CY 170 SIGN BIT  
 (SC,SD,SE,SF)  
 17 (C) -SHIFT TYPE  
 (CO,FO,KO,NO-C2F2,K2,N2)  
 06 (RH) -SCALE FACTOR  
 (A3,B,A4B-A3D,A4D)  
 05 (PK)



- 02 (BR) -B ROUND  
 BIT



SHIFTER BITS  
 (80A,B,C,D-  
 95A,B,C,D)

(AU) 18

CONTROL DATA CANADA, LTD.  
 CANADIAN DEVELOPMENT DIVISION  
 CD  
 CONTROL  
 DATA

## SHIFTER

MODULE ASSY - 210 PAK  
 TYPE 8T50

CODE IDENT.  
 34570

DWG. NO.  
 C

REV  
 A

SHEET 17

(H)

4

3

2

1

4

3

2

1

16 (AN) PT1 (CLOCK)

16 (AP) + L ADDER CONT

16 (AQ) - L ADDER CONT

06 (AD) - SIGN OF A

9

RQTR  
10176  
CDH26  
CDH4023 X→Y  
16  
8  
4  
2  
1  
17  
14  
1G31  
G00O 5  
1 13  
2 9  
3 12  
4 7  
5 10  
6 4  
7 14  
8 11

65536	ALU
61440	10179
4096	A $\Sigma A, B \geq 65536$
3840	$\Sigma A, B = 65536$
256	H36
240	B $\Sigma A, B, C \geq 65536$
16	$\Sigma B, C \geq 256$
15	C
1	

2 NC

15

-PI (AS)

3

-CARRY OUT OF BIT 16 (AT)

6

(A)

-LADDER BIT 16

A104

17 B104

18 B103

19 A103

80A

80B

80C

80D

81A

81B

81C

81D

82A

82B

82C

82D

83A

83B

83C

83D

84A

84B

84C

84D

85A

85B

85C

85D

86A

86B

86C

86D

87A

87B

87C

87D

88A

88B

88C

88D

89A

89B

89C

89D

90A

90B

90C

90D

91A

91B

91C

91D

92A

92B

92C

92D

93A

93B

93C

93D

94A

94B

94C

94D

95A

95B

95C

95D

SHIFTER BITS

(80A,B,C,D-

95A,B,C,D)

17 (AU) - SIGN OF A

06 (AB) - SIGN OF A

20 (AW) - CARRY OUT OF BIT 32

23 X→Y  
16  
8  
4  
2  
1  
17  
14  
1G31  
G00O 5  
1 13  
2 9  
3 12  
4 7  
5 10  
6 4  
7 14  
8 11

65536	ALU
61440	10179
4096	A $\Sigma A, B \geq 65536$
3840	$\Sigma A, B = 65536$
256	H36
240	B $\Sigma A, B, C \geq 65536$
16	$\Sigma B, C \geq 256$
15	C
1	

2 NC

15

-PI (AS)

3

-CARRY OUT OF BIT 16 (AT)

6

(A)

-LADDER BIT 16

A104

17 B104

18 B103

19 A103

20 B106

21 A108

22 A106

23 B105

24 B100

25 A100

26 A101

27 B101

28 A96

29 B95

30 B96

-LADDER BIT 31

A98

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

ADDER BITS 16-31

MODULE ASSY - 210 PAK  
TYPE 8T50

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

18

(J)

4

3

2

1

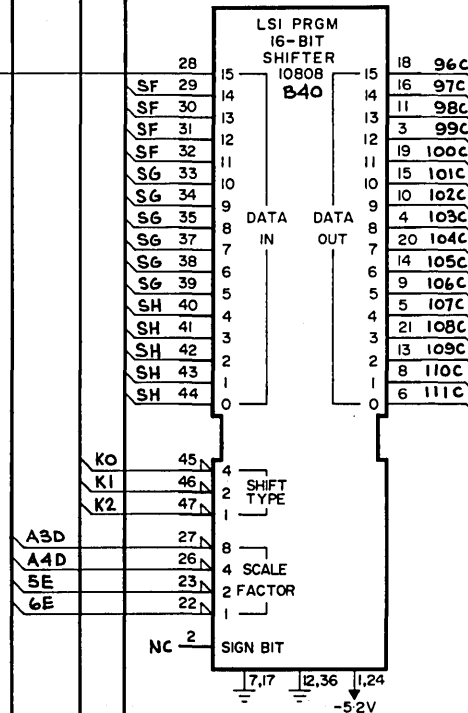
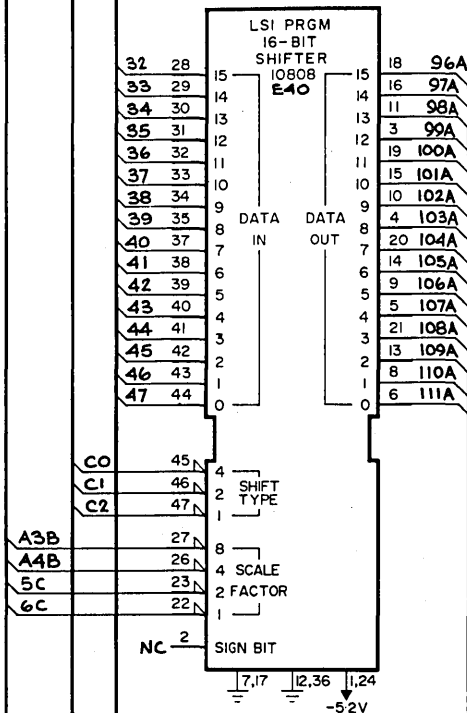
4

3

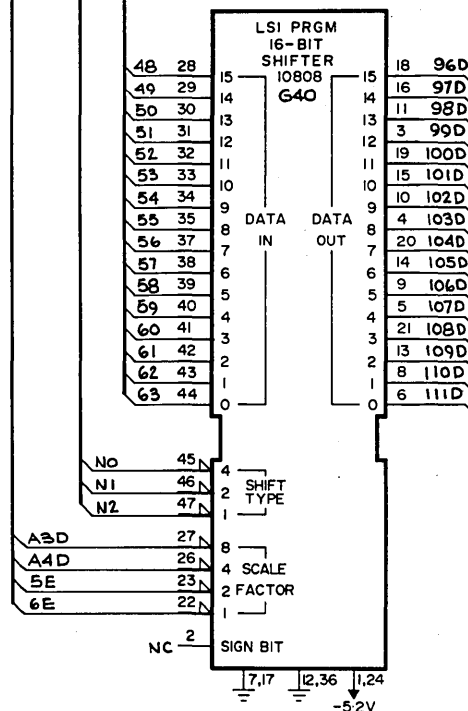
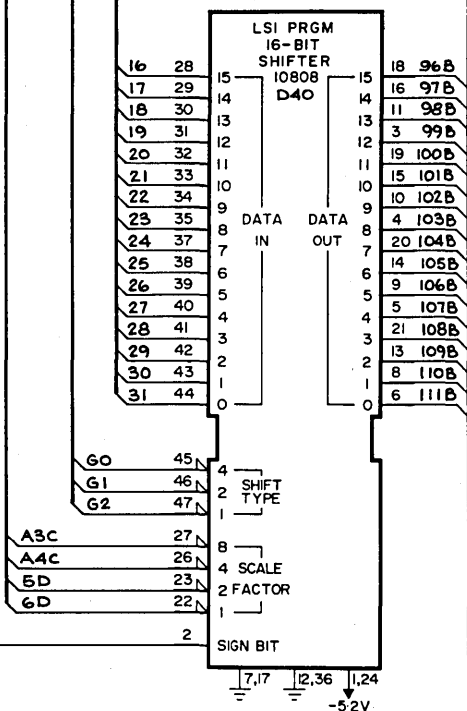
2

1

- CY 170 SIGN BIT  
(SF,SG,SH)  
02 (B)  
-BD BITS 16-63  
(16-63)  
03 (M)  
-SHIFT TYPE  
(CO,GO,KO,NO-C2,G2,K2,N2)  
06 (R)  
-SCALE FACTOR  
(5C,6C-5E,6E,  
05 (PL)  
A3B,A4B-  
A3D,A4D)



- B ROUND  
BIT  
02 (B)



- SIGN BIT 1  
04 (P)

SHIFTER BITS  
(96,A,B,C,D-  
111A,B,C,D) (AV) 20

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

SHIFTER  
MODULE ASSY - 210 PAK  
TYPE BT50

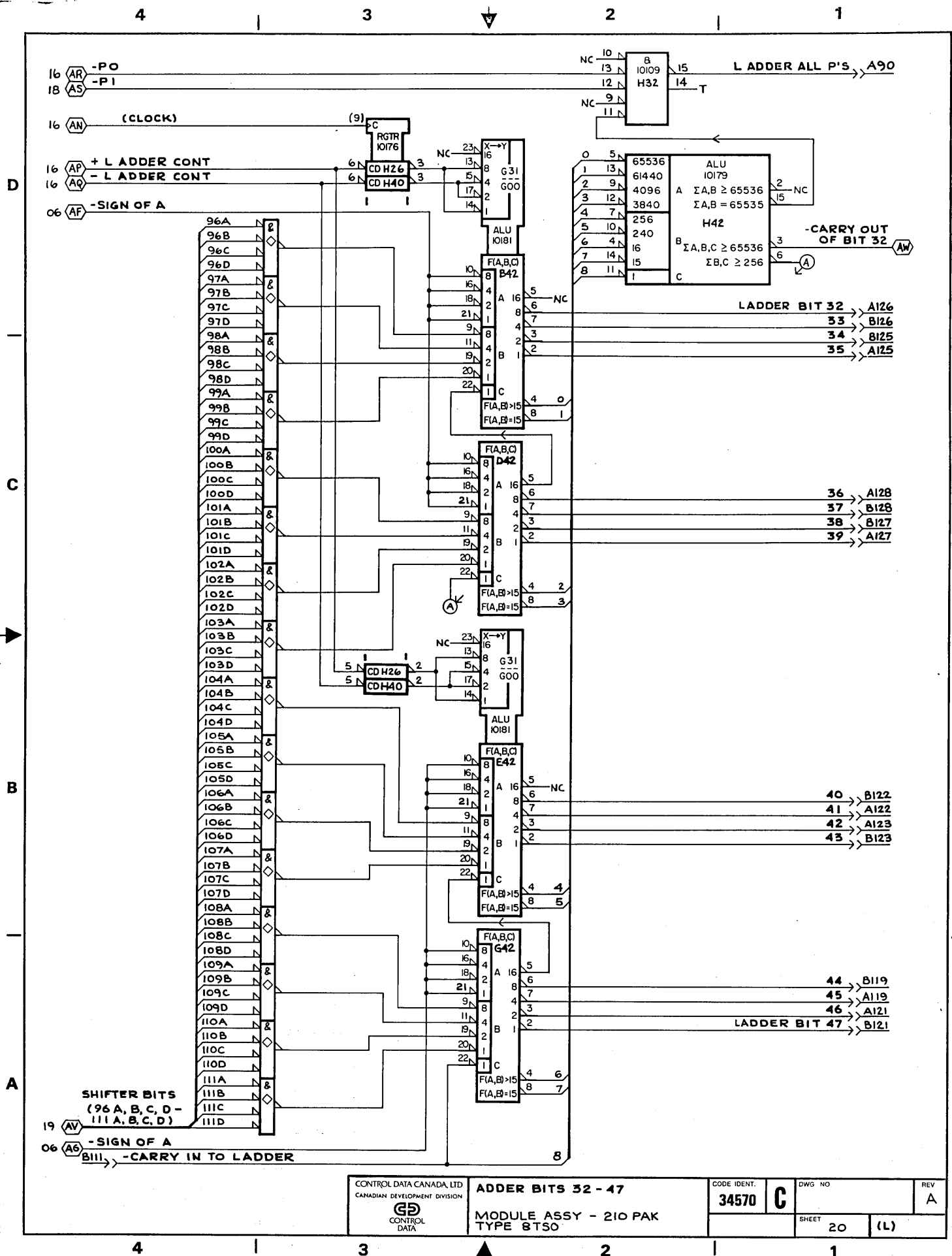
CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET 19 (K)





4

3

2

1

03 MA -BD BITS 4-63

02 G (BDO-BD3)

BDO 4  
BD1 10  
BD2 5  
BD3 6  
4 14  
5 15  
6 3  
7 7  
13  
NC 9  
NC 11  
NC 12

2K  
10160  
B2

2 PO

8 11  
9 6  
10 12  
11 5  
12 13  
13 4  
14 14  
15 3  
NC 7  
NC 9  
NC 15  
NC 10

2K  
10160  
B4

2 P1

B4 → -BD BIT P0

A12 → \*

1

16 10  
17 6  
18 11  
19 5  
20 12  
21 4  
22 13  
23 3  
15  
NC 7  
NC 9  
NC 14

2K  
10160  
D4

2 P2

24 4  
25 3  
26 10  
27 11  
28 12  
29 13  
30 14  
31 15  
NC 6  
NC 7  
NC 9  
NC 5

2K  
10160  
D2

2 P3

B12 → \*

2

A9 → \*

3

32 10  
33 11  
34 12  
35 13  
36 14  
37 15  
38 3  
39 7  
4  
NC 5  
NC 6  
NC 9

2K  
10160  
E2

2 P4

40 11  
41 6  
42 12  
43 5  
44 13  
45 4  
46 14  
47 3  
NC 7  
NC 9  
NC 10  
NC 15

2K  
10160  
E4

2 P5

B8 → \*

4

A15 → \*

5

48 10  
49 6  
50 11  
51 5  
52 12  
53 4  
54 13  
55 3  
15  
NC 7  
NC 9  
NC 14

2K  
10160  
G4

2 P6

56 4  
57 3  
58 10  
59 11  
60 12  
61 13  
62 14  
63 15  
NC 6  
NC 7  
NC 9  
NC 5

2K  
10160  
G2

2 P7

B13 → \*

6

A8 → -BD BIT P7

P0 4  
P1 5  
P2 6  
P3 7

8  
10109  
K42  
3  
T

P4 13  
P5 11  
P6 10  
P7 9

15  
14  
T

+BD PE AX 22

NOTE: \* SHORT AND DO NOT TERMINATE

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISIONCD  
CONTROL  
DATA

BD INPUT PARITY CHECK

MODULE ASSY - 210 PAK  
TYPE 8T50

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET 21

(M)

4

3

2

1

4

3

2

1

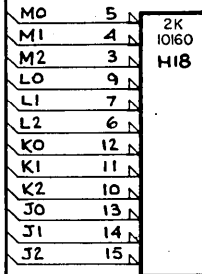
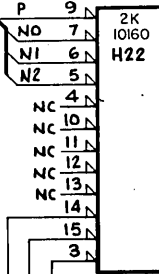
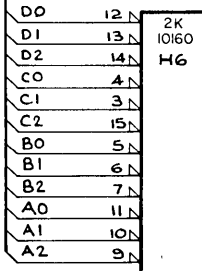
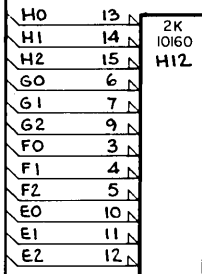
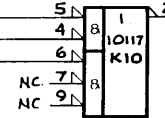
AO 27 - T1 (CLOCK)

27



-SHIFT TYPE

06 RK (A0-A2)-(N0-N2),P

21 AX + BDPE  
B99 -> + P EXIT

NOTE:

THIS DRAWING IS APPLICABLE ONLY  
TO PWB 19249210

CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

PARITY CHECK

MODULE ASSY - 210 FAK  
TYPE 8T50CODE IDENT  
34570

C

DWG. NO.

REV

D

SHEET 22

(N)

4

3

2

1

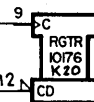
4

3

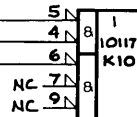
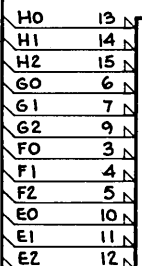
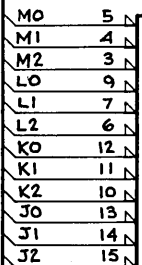
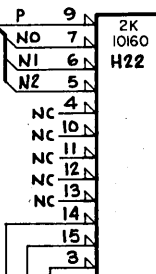
2

1

AO 27 - T1 (CLOCK)

-SHIFT TYPE  
(A0-A2)-(N0-N2), P

06 RK

21 AX + BDPE  
B99 -> + P EXIT

NOTE:

THIS DRAWING IS APPLICABLE  
TO PWB 19266604 AND PWB 19268796CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
 CONTROL DATA

PARITY CHECK

MODULE ASSY - 210 PAK  
TYPE BT50

CODE IDENT.

34570

DWG. NO.

C

REV

D

SHEET

22A

(N)

4

3

2

1

4

3

2

1

## SHIFTER CONTROL ROMS FOR 8T50

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 J06 19266840  
 2 J08 19266841  
 3 J10 19266842  
 4 J12 19266843  
 5 J14 19266844  
 6 J16 19266845  
 7 J18 19266846  
 8 J20 19266847  
 9 J22 19266848  
 10 J24 19266849

ADDR CONTENTS  
 00 FC92492592  
 01 2092482793  
 02 2082482412  
 03 20F2482412  
 04 2082482413  
 05 2082482413  
 06 2082482413  
 07 2082482413  
 08 D814812493  
 09 0490814893  
 0A 04904908A5  
 0B 05104904EC  
 0C 0710510481  
 0D 0410710480  
 0E 0410410480  
 0F 0410410480  
 10 FC924925B3  
 11 2492486FF2  
 12 2486CFFC92  
 13 6CFFC92493  
 14 2492492493  
 15 2492492493  
 16 2492492493  
 17 2492492493  
 18 D8A4892493  
 19 24ED8A4892  
 1A 24924ED922  
 1B 4892492763  
 1C 2492492493  
 1D 2492492493  
 1E 2492492493  
 1F 2492492493  
 20 2492492493  
 21 2492492493  
 22 2492492493  
 23 2492492493  
 24 2492492493  
 25 2492492493  
 26 2492492493  
 27 2492492493  
 28 1812812493  
 29 0491812893  
 2A 0490491895  
 2B 051049048C  
 2C 0710510481  
 2D 0410710480  
 2E 0410410480  
 2F 0410410480  
 30 2492492493  
 31 2492492493  
 32 2492492493  
 33 2492492493  
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 35 2492492493  
 36 2492492493  
 37 2492492493  
 38 2492492493  
 39 2492492493  
 3A 2492492493  
 3B 2492492493  
 3C 2492492493  
 3D 2492492493  
 3E 2492492493  
 3F 2492492493

ADDR CONTENTS  
 40 2492492493  
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 42 2492492493  
 43 2492492493  
 44 2492492493  
 45 2492492493  
 46 2492492493  
 47 2492492493  
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 49 2492492493  
 4A 2492492493  
 4B 2492492493  
 4C 2492492493  
 4D 2492492493  
 4E 2492492493  
 4F 2492492493  
 50 FC92492DF3  
 51 2492C8FF93  
 52 2C8FCF2493  
 53 FC924925B3  
 54 2492492493  
 55 2492492493  
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 59 2492492493  
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 5E 2492492493  
 5F 2492492493  
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 67 2492492493  
 68 2492492493  
 69 2492492493  
 6A 2492492493  
 6B 2492492493  
 6C 2492492493  
 6D 2492492493  
 6E 2492492493  
 6F 2492492493  
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 76 2492492493  
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 79 2492492493  
 7A 2492492493  
 7B 2492492493  
 7C 2492492493  
 7D 2492492493  
 7E 2492492493  
 7F 2492492493

ADDR CONTENTS  
 80 2082482413  
 81 2082482413  
 82 2082482413  
 83 2082482413  
 84 2082482413  
 85 2082482413  
 86 2082482413  
 87 2082482413  
 88 0490490483  
 89 0490490483  
 8A 0490490483  
 8B 0490490483  
 8C 0490490483  
 8D 0490490483  
 8E 0490490483  
 8F 0490490483  
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 91 2492492493  
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 96 2492492493  
 97 2492492493  
 98 2492492493  
 99 2492492493  
 9A 2492492493  
 9B 2492492493  
 9C 2492492493  
 9D 2492492493  
 9E 2492492493  
 9F 2492492493  
 A0 2492492493  
 A1 2492492493  
 A2 2492492493  
 A3 2492492493  
 A4 2492492493  
 A5 2492492493  
 A6 2492492493  
 A7 2492492493  
 A8 0410410480  
 A9 0410410480  
 AA 0410410480  
 AB 0410410480  
 AC 0410410480  
 AD 0410410480  
 AE 0410410480  
 AF 0410410480  
 B0 2492492493  
 B1 2492492493  
 B2 2492492493  
 B3 2492492493  
 B4 2492492493  
 B5 2492492493  
 B6 2492492493  
 B7 2492492493  
 B8 2492492493  
 B9 2492492493  
 BA 2492492493  
 BB 2492492493  
 BC 2492492493  
 BD 2492492493  
 BE 2492492493  
 BF 2492492493

ADDR CONTENTS  
 C0 2492492493  
 C1 2492492493  
 C2 2492492493  
 C3 2492492493  
 C4 2492492493  
 C5 2492492493  
 C6 2492492493  
 C7 2492492493  
 C8 2492492493  
 C9 2492492493  
 CA 2492492493  
 CB 2492492493  
 CC 2492492493  
 CD 2492492493  
 CE 2492492493  
 CF 2492492493  
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 D1 2492492493  
 D2 2492492493  
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 D4 2492492493  
 D5 2492492493  
 D6 2492492493  
 D7 2492492493  
 D8 2492492493  
 D9 2492492493  
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 F6 2492492493  
 F7 2492492493  
 F8 2492492493  
 F9 2492492493  
 FA 2492492493  
 FB 2492492493  
 FC 2492492493  
 FD 2492492493  
 FE 2492492493  
 FF 2492492493

CONTROL DATA CANADA, LTD.  
 CANADIAN DEVELOPMENT DIVISION  
  
 CONTROL  
 DATA

SHIFTER CONTROL ROMS FOR 8T50  
 MODULE ASSY - 210 PAK  
 TYPE 8T50

CODE IDENT.  
 34570

C

DWG. NO.

SHEET

23

REV  
 A

4

3

2

1

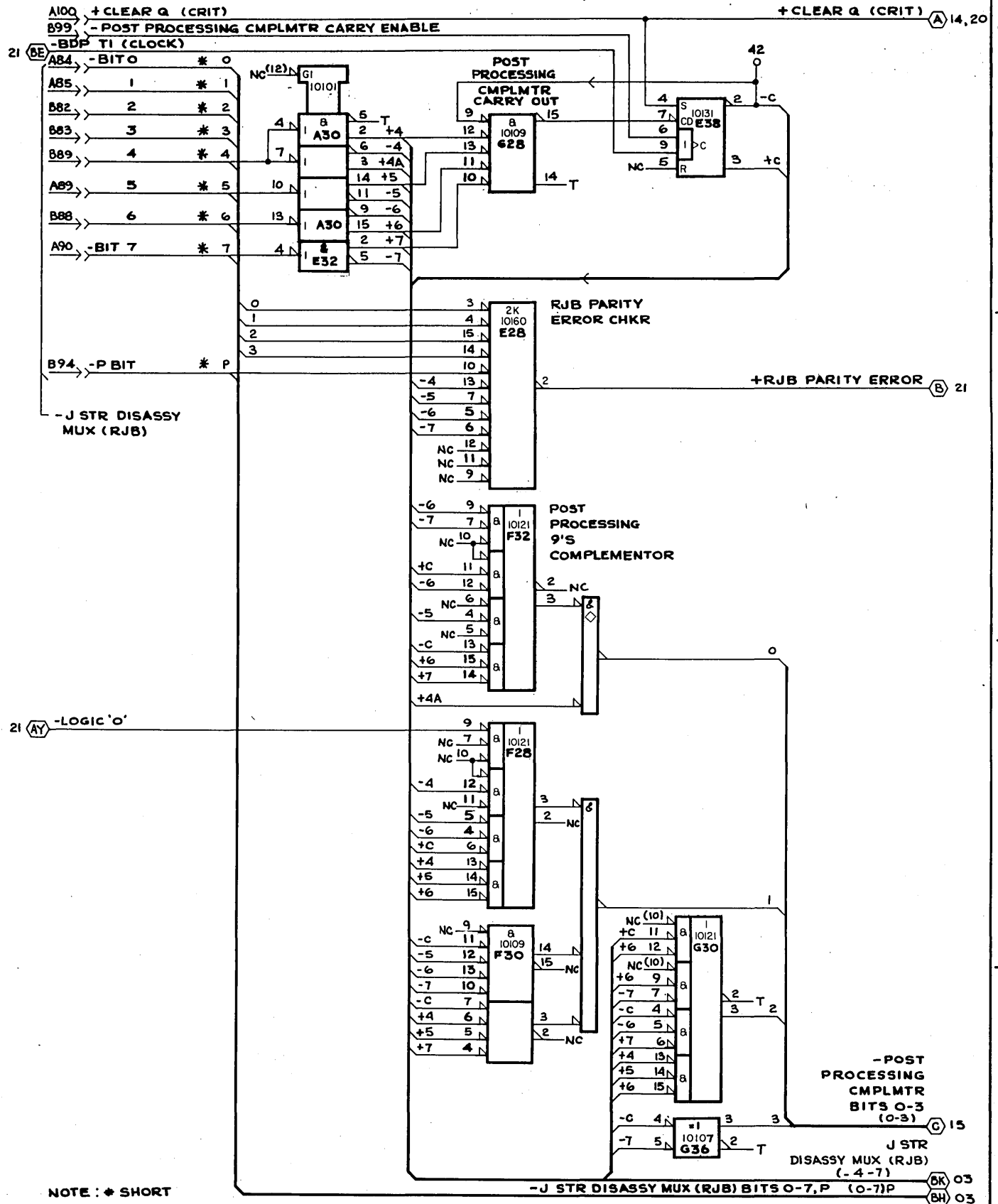


4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
GD  
CONTROL DATA

J STREAM DISASSY MUX (RJB) BITSO-7,  
POST PROCESSING 9'S CMPLMTR  
MODULE ASSY - 210 PAK  
TYPE 8TVO

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

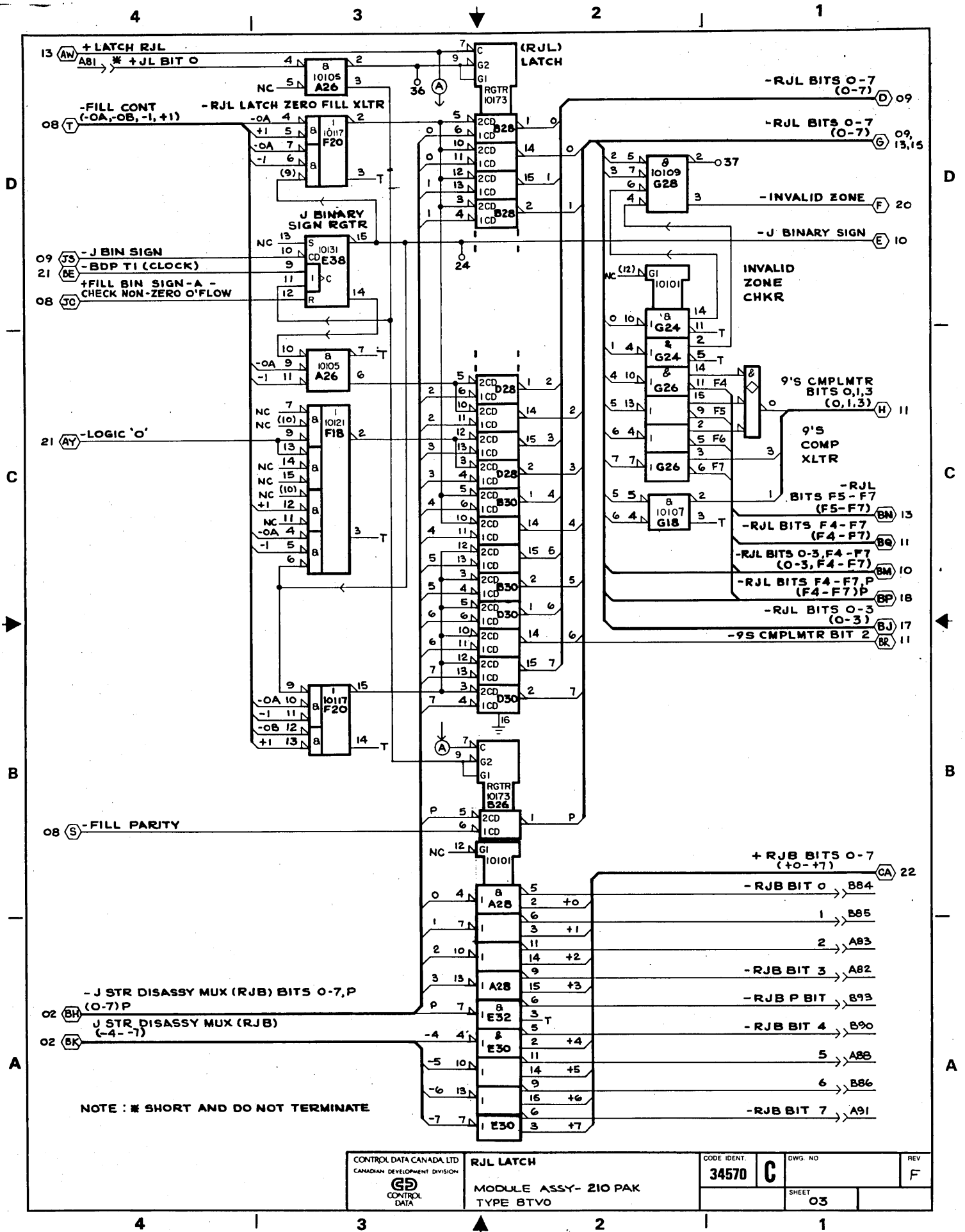
SHEET  
02

4

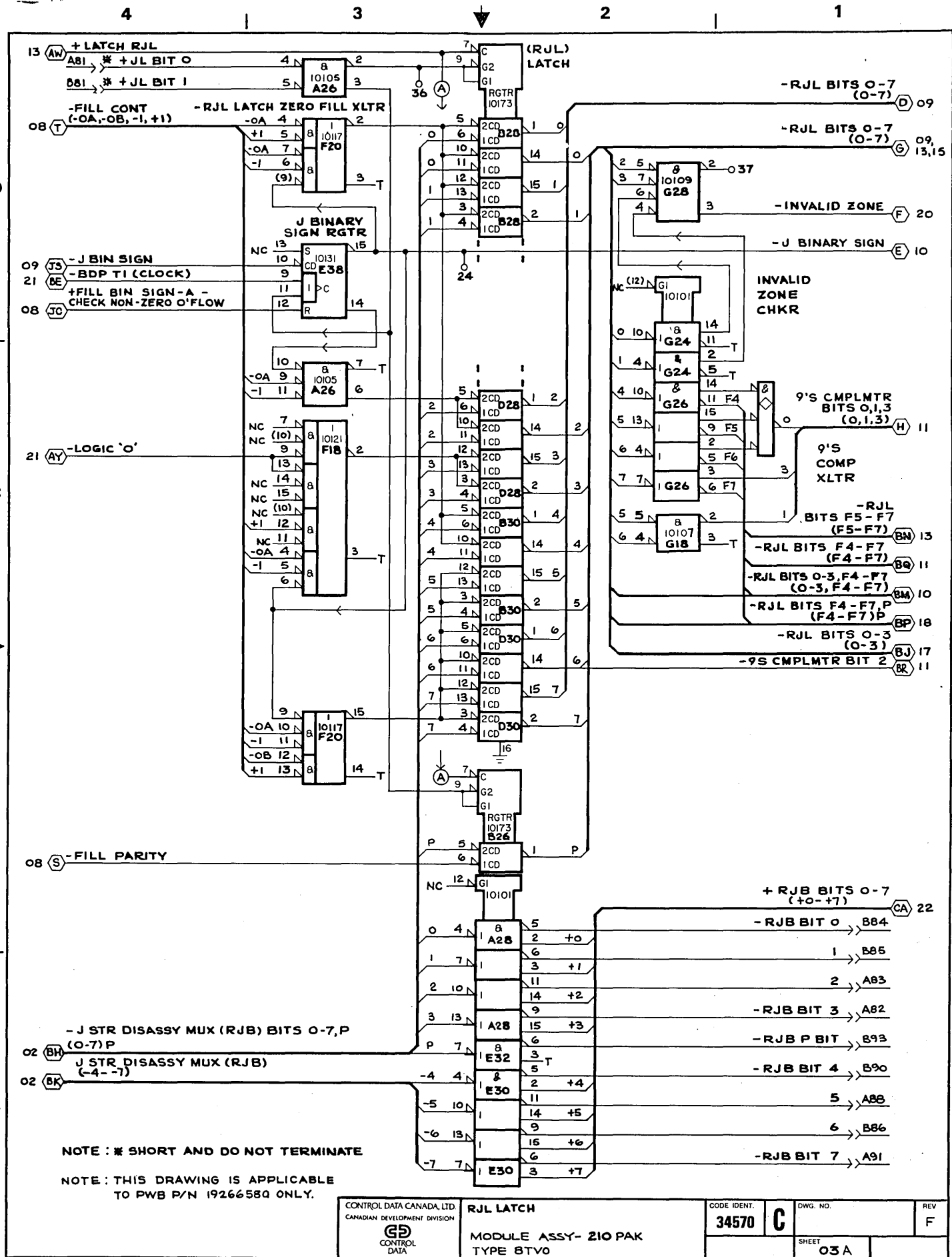
3

2

1







4

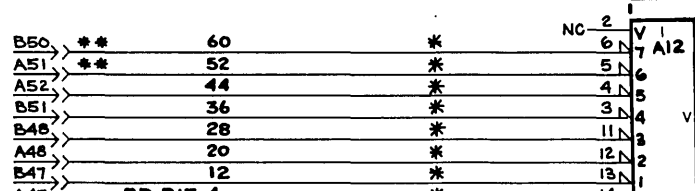
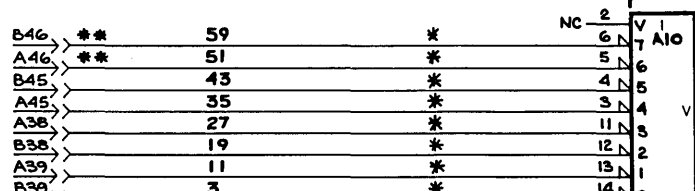
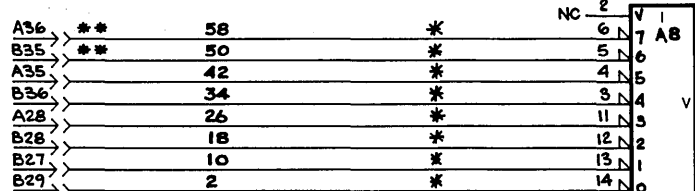
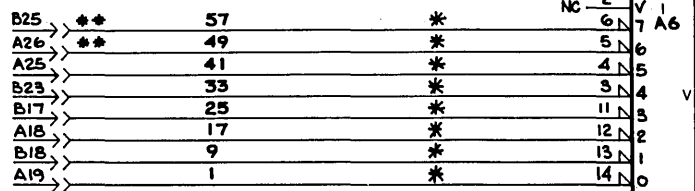
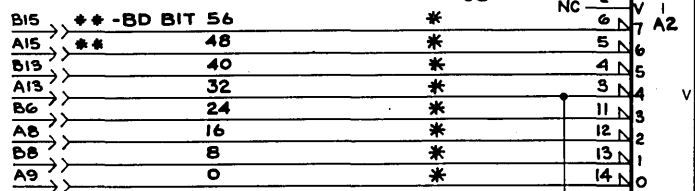
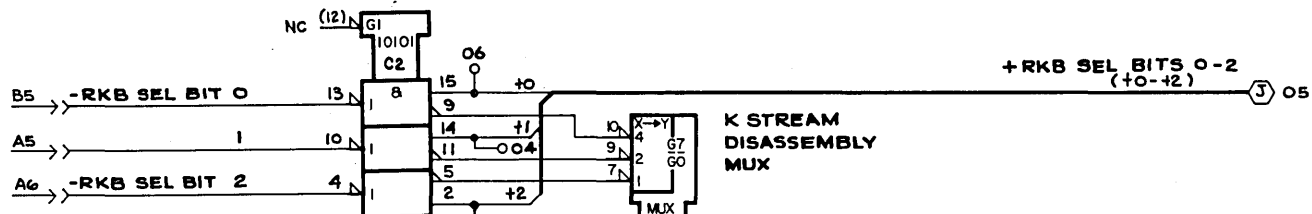
3

2

1

D

D



21 (AY) -LOGIC '0'

NOTE: \* SHORT  
 \*\* DO NOT TERMINATE

A

A

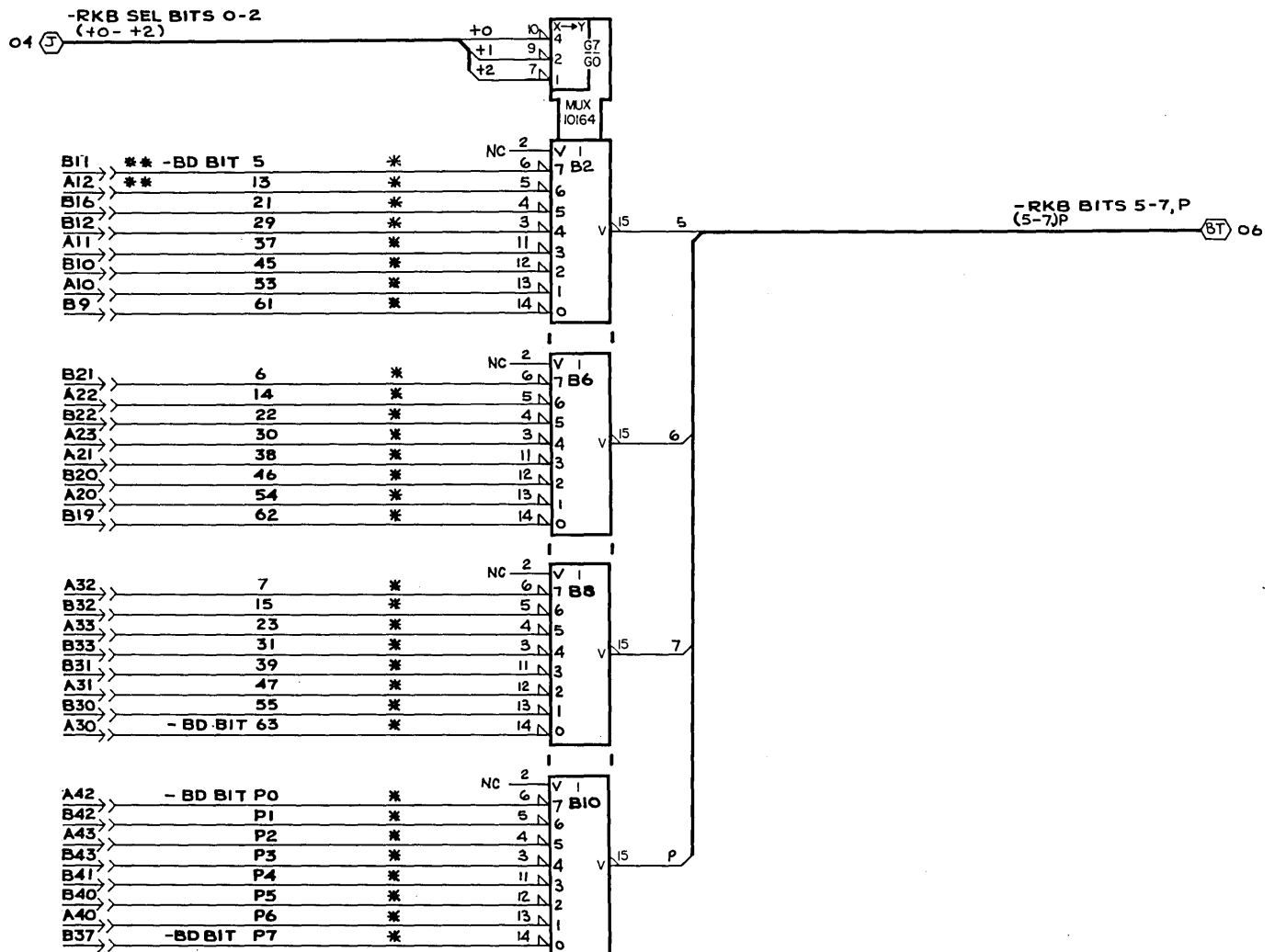
4

3

2

1

# K STREAM DISASSEMBLY MUX



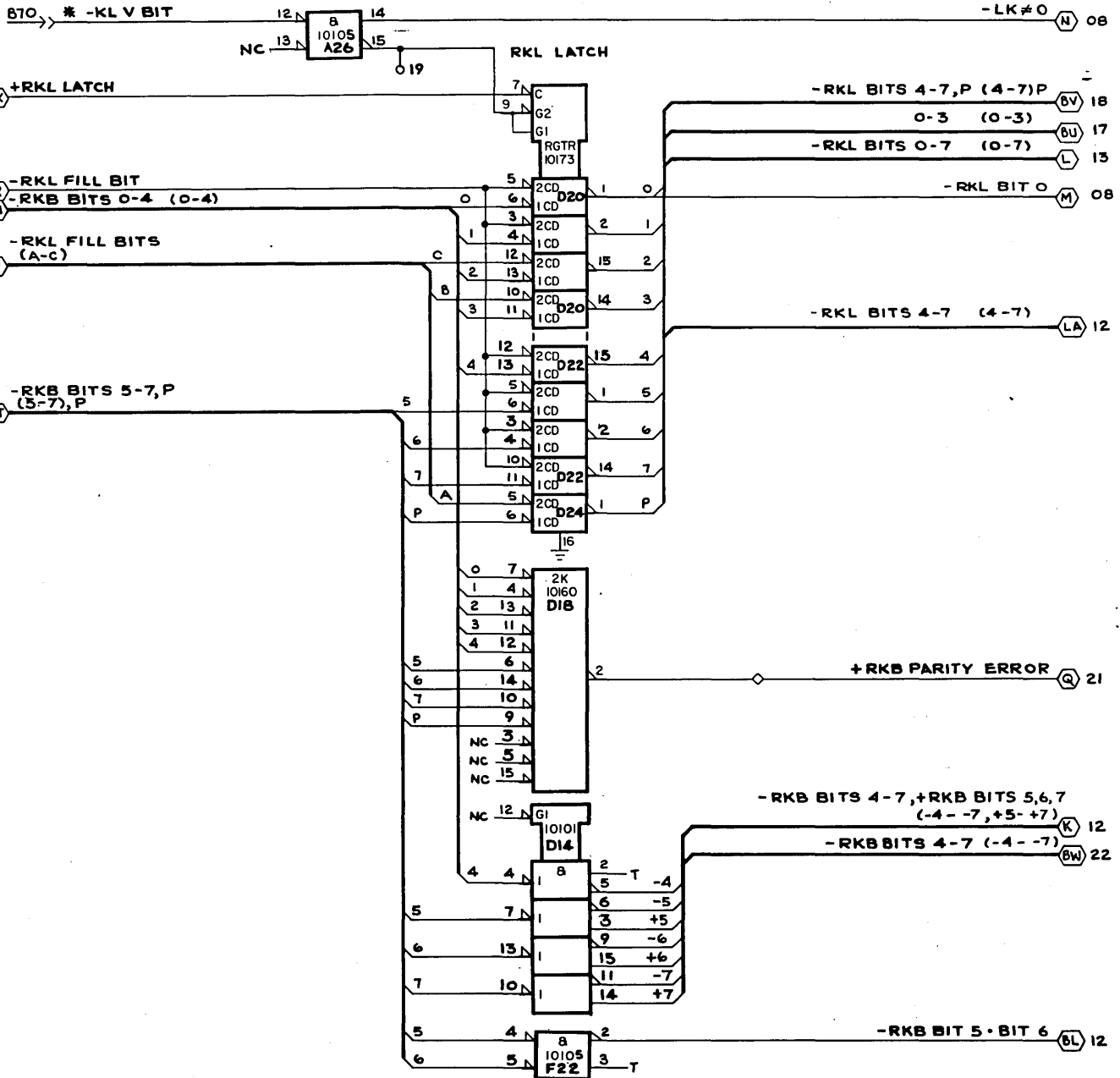
NOTES: \* SHORT  
\* \* DO NOT TERMINATE

D

C

B

A



D

C

B

A

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
**GD**  
CONTROL  
DATA

**RKL LATCH, RKB PARITY**  
**MODULE ASSY - 210PAK**  
**TYPE 8TVO**

CODE IDENT.

**34570****C**

DWG. NO.

SHEET

**06**

REV

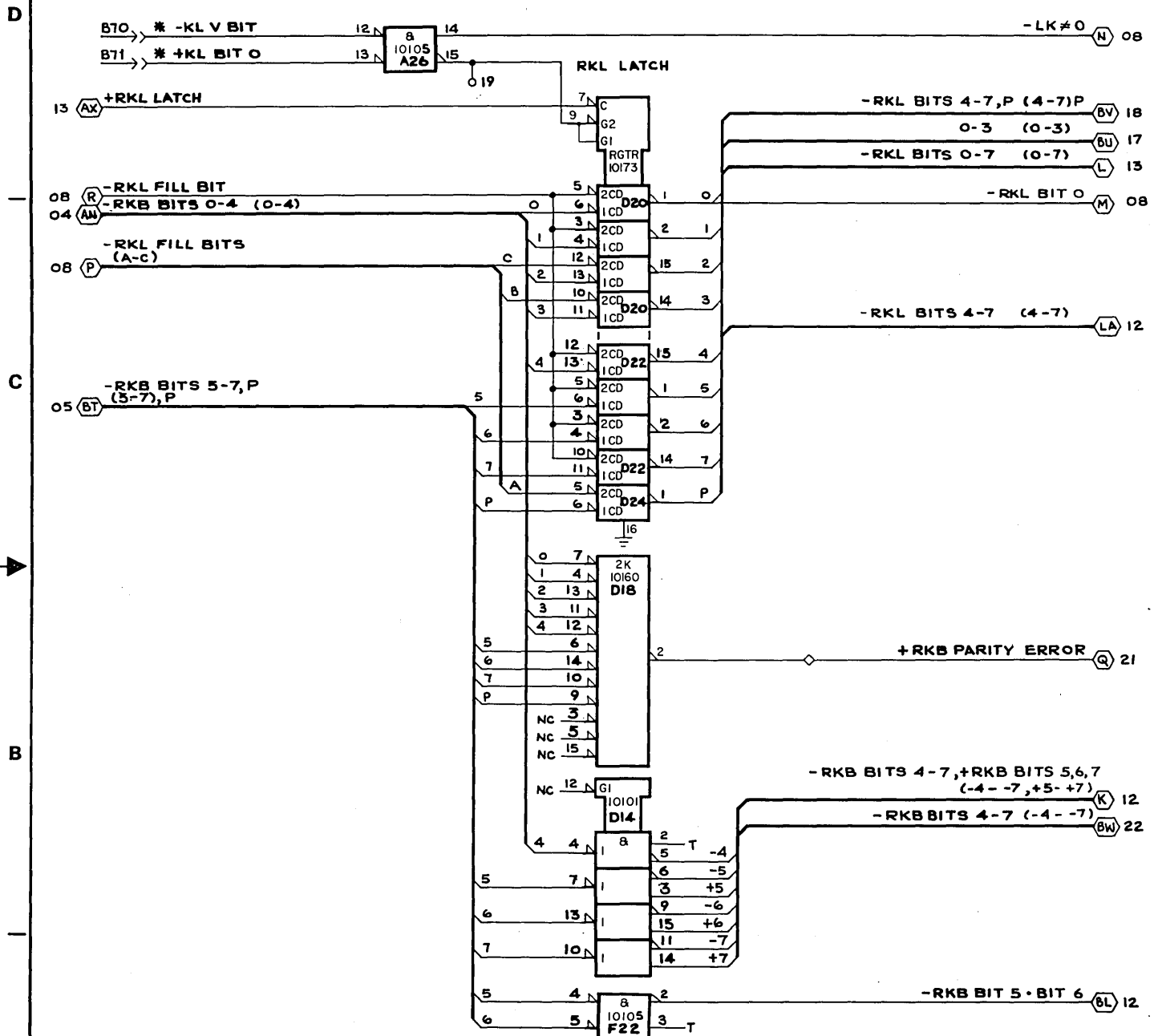
**F**

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL DATA

**RKL LATCH, RKB PARITY**  
**MODULE ASSY - 210PAK**  
**TYPE 8TVO**

CODE IDENT.  
**34570**

DWG. NO.  
**C**  
SHEET  
**06A**

REV  
**F**

4

3

2

1

4

3

2

1

D

D

C

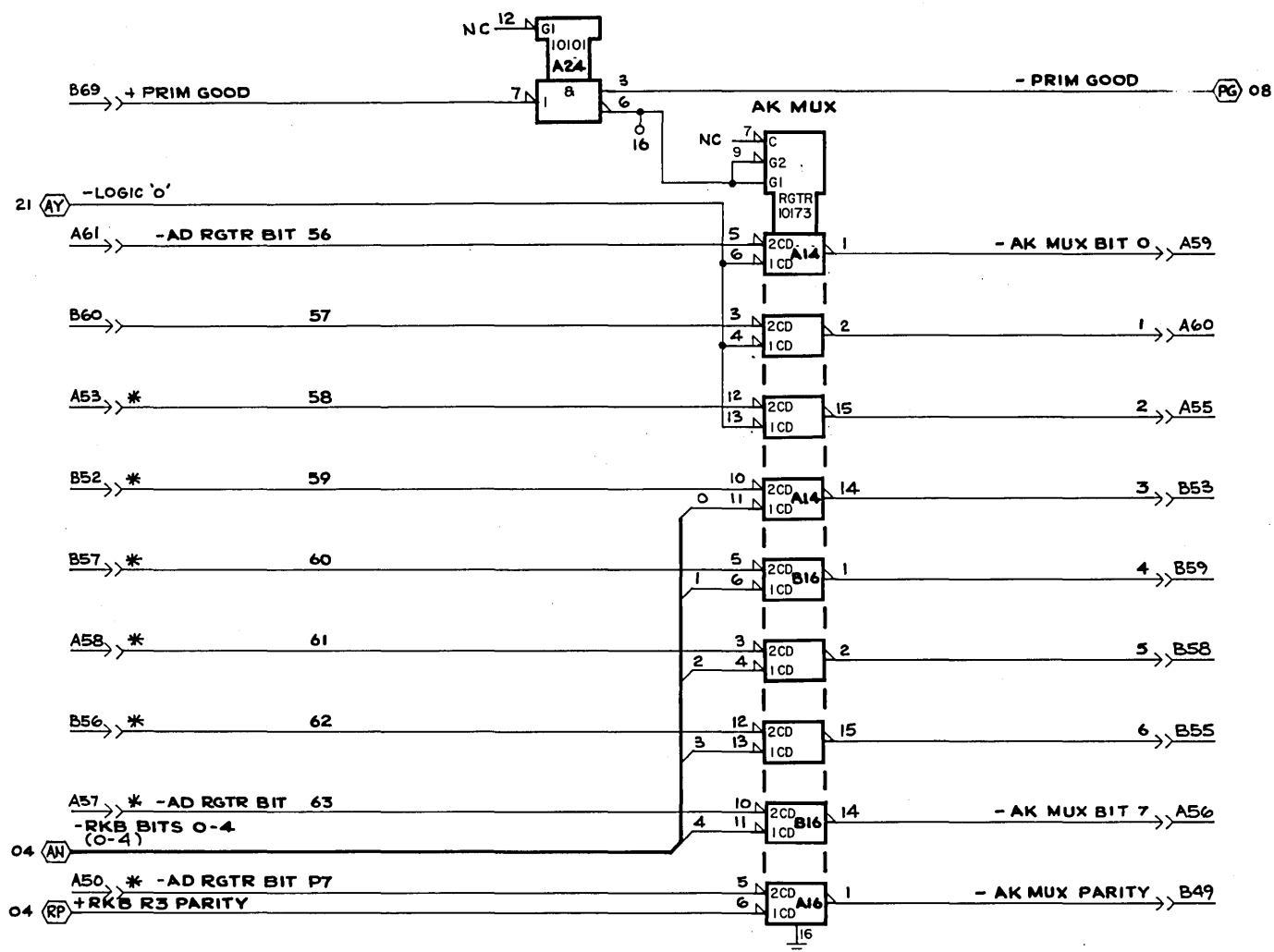
C

B

B

A

A



NOTE : \* SHORT AND DO NOT TERMINATE

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

AK MUX

MODULE ASSY - 210PAK  
TYPE 8TVO

CODE IDENT.

34570

DWG. NO.

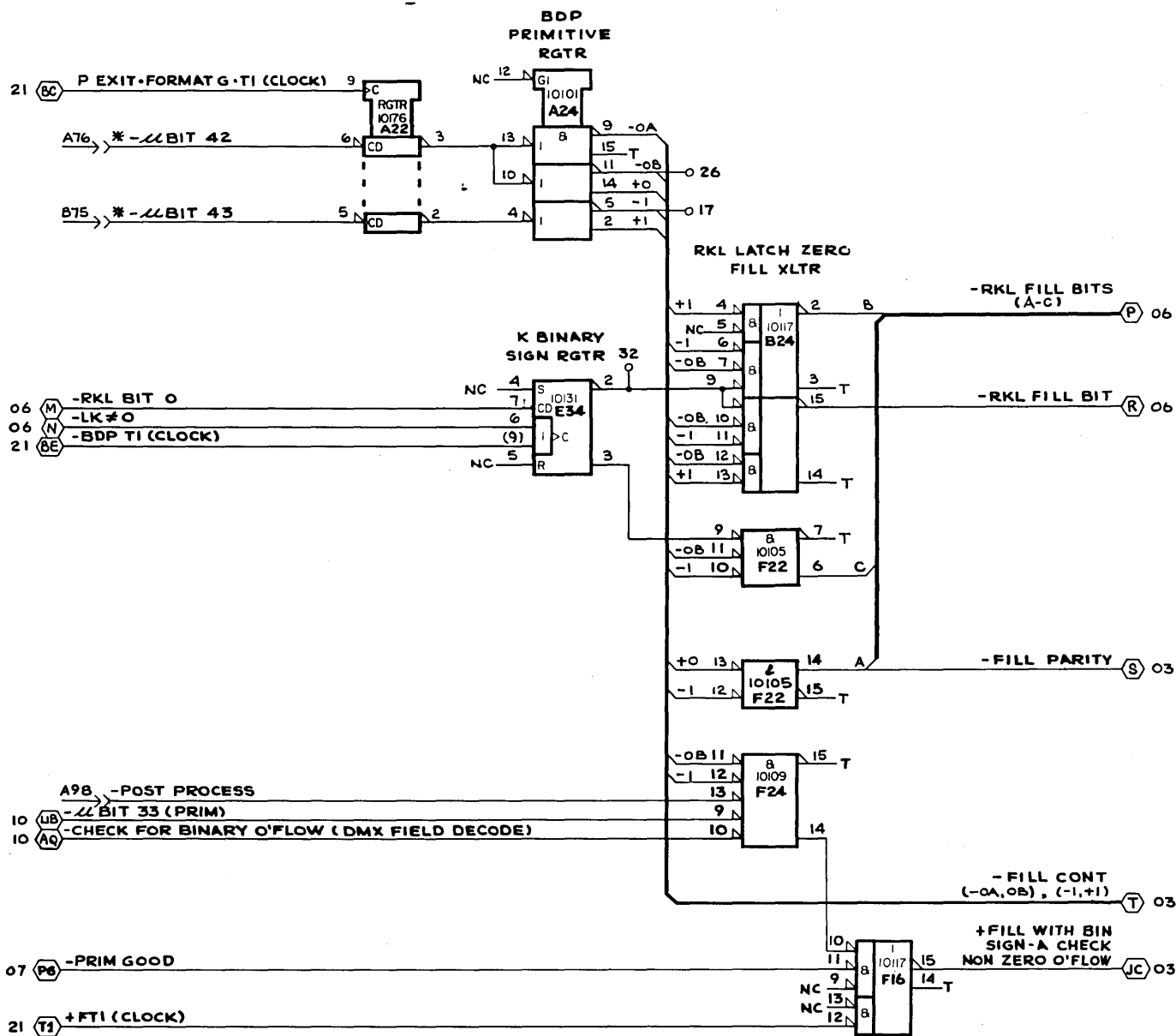
C

REV

A

SHEET

07



NOTE : \* SHORT AND DO NOT TERMINATE.

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

BDP PRIM RGTR, K BINARY SIGN RGTR,  
RKL LATCH ZERO FILL XLTR  
MODULE ASSY - 210PAK  
TYPE 8TVO

CODE IDENT.  
34570

C

DWG NO.

SHEET  
08

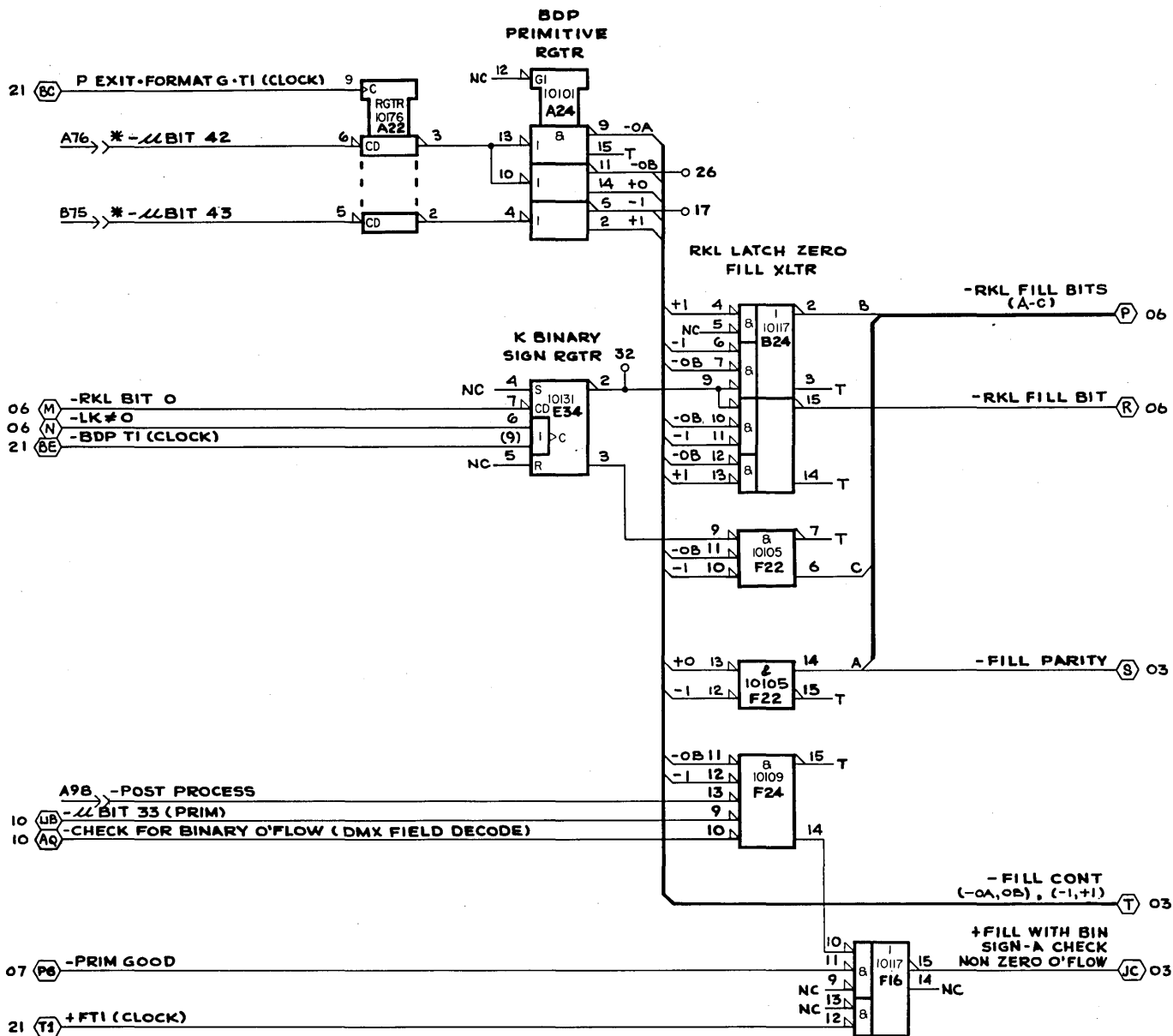
REV.  
F

4

3

2

1



NOTE: THIS DRAWING IS APPLICABLE  
TO PWB P/N 19266580 ONLY.

NOTE: \* SHORT AND DO NOT  
TERMINATE.

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

BDP PRIM RGTR, K BINARY SIGN RGTR,  
RKL LATCH ZERO FILL XLTR  
MODULE ASSY-210PAK  
TYPE 8TVO

CODE IDENT.  
34570

DWG. NO.  
C

SHEET  
08A

REV  
F

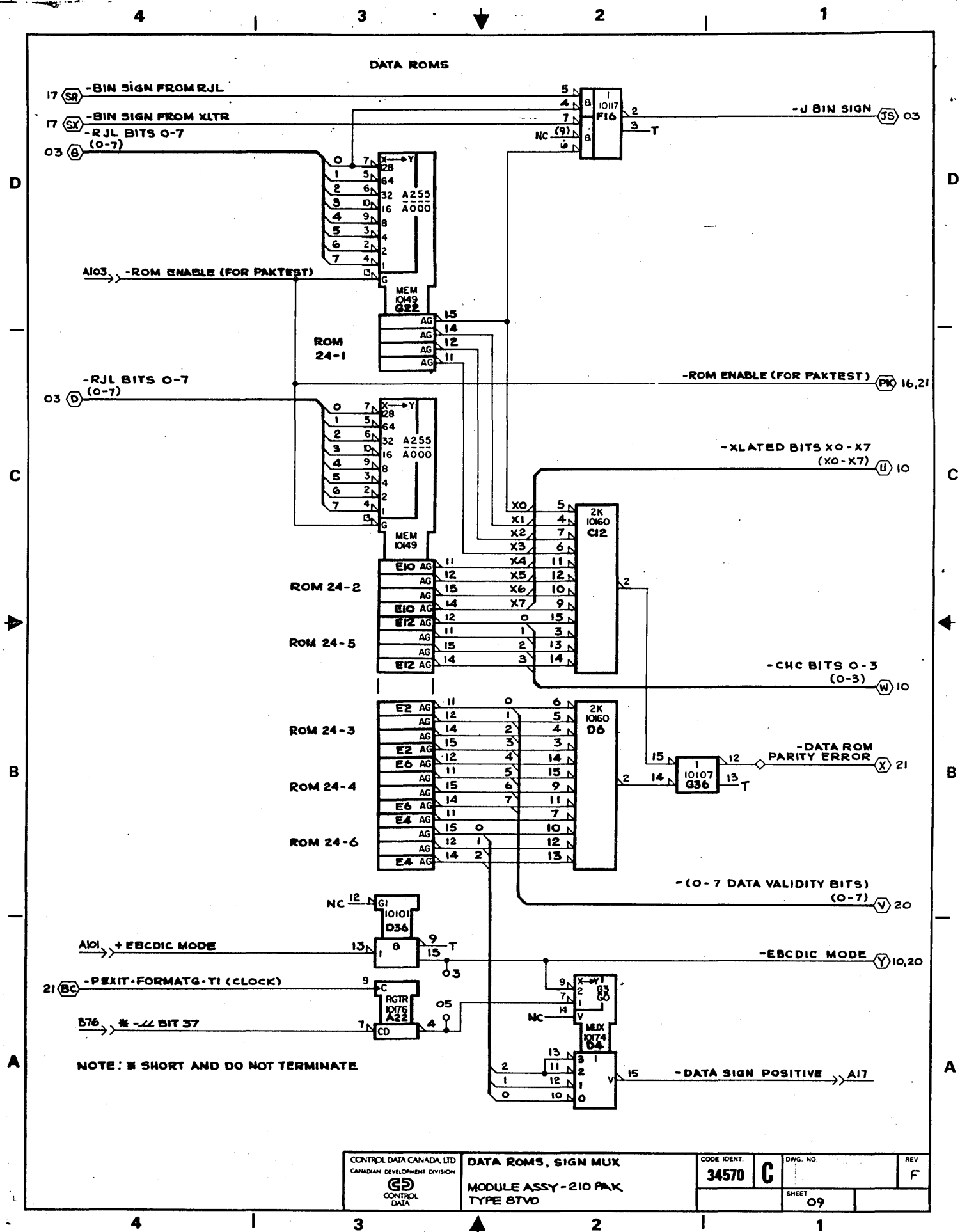
4

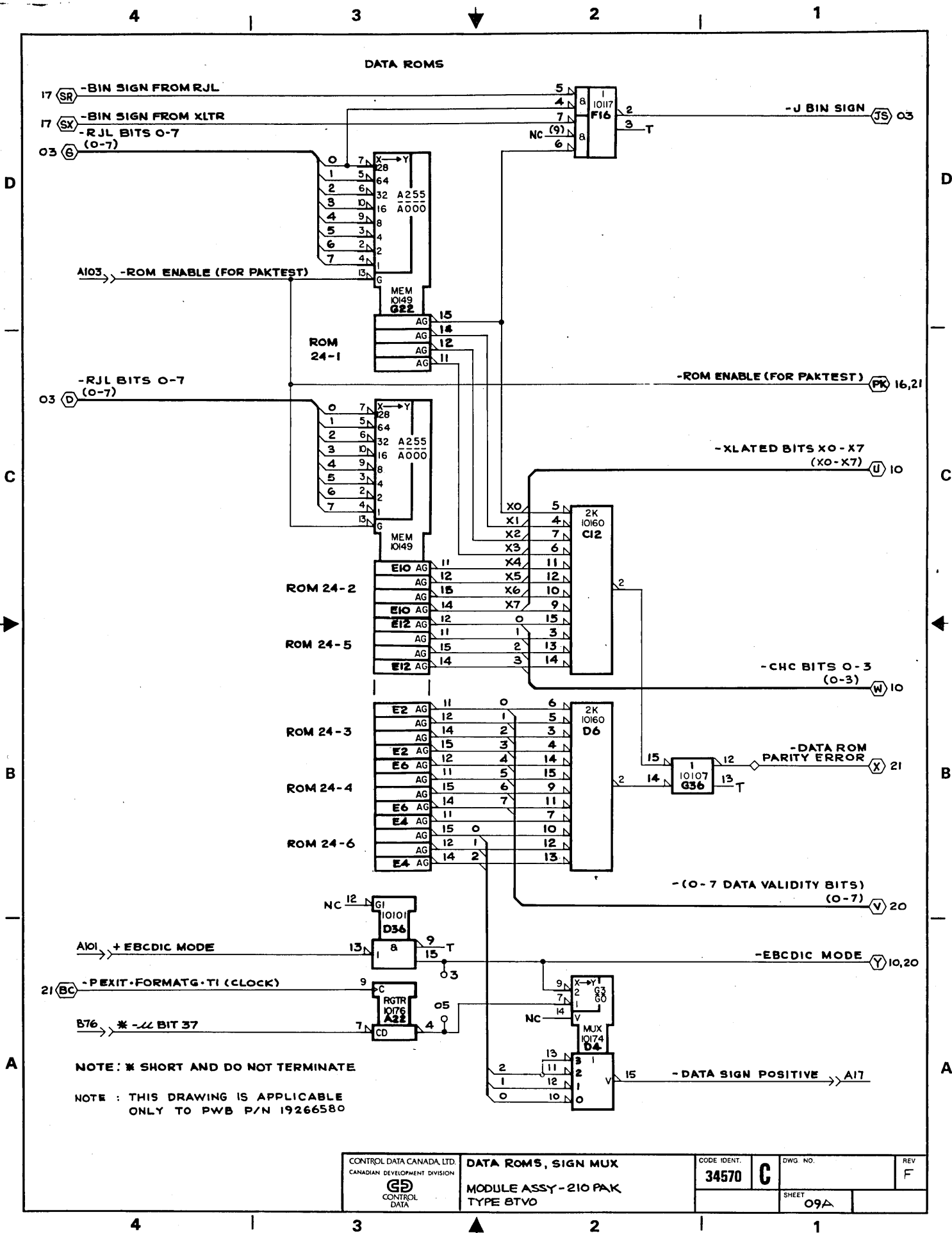
3

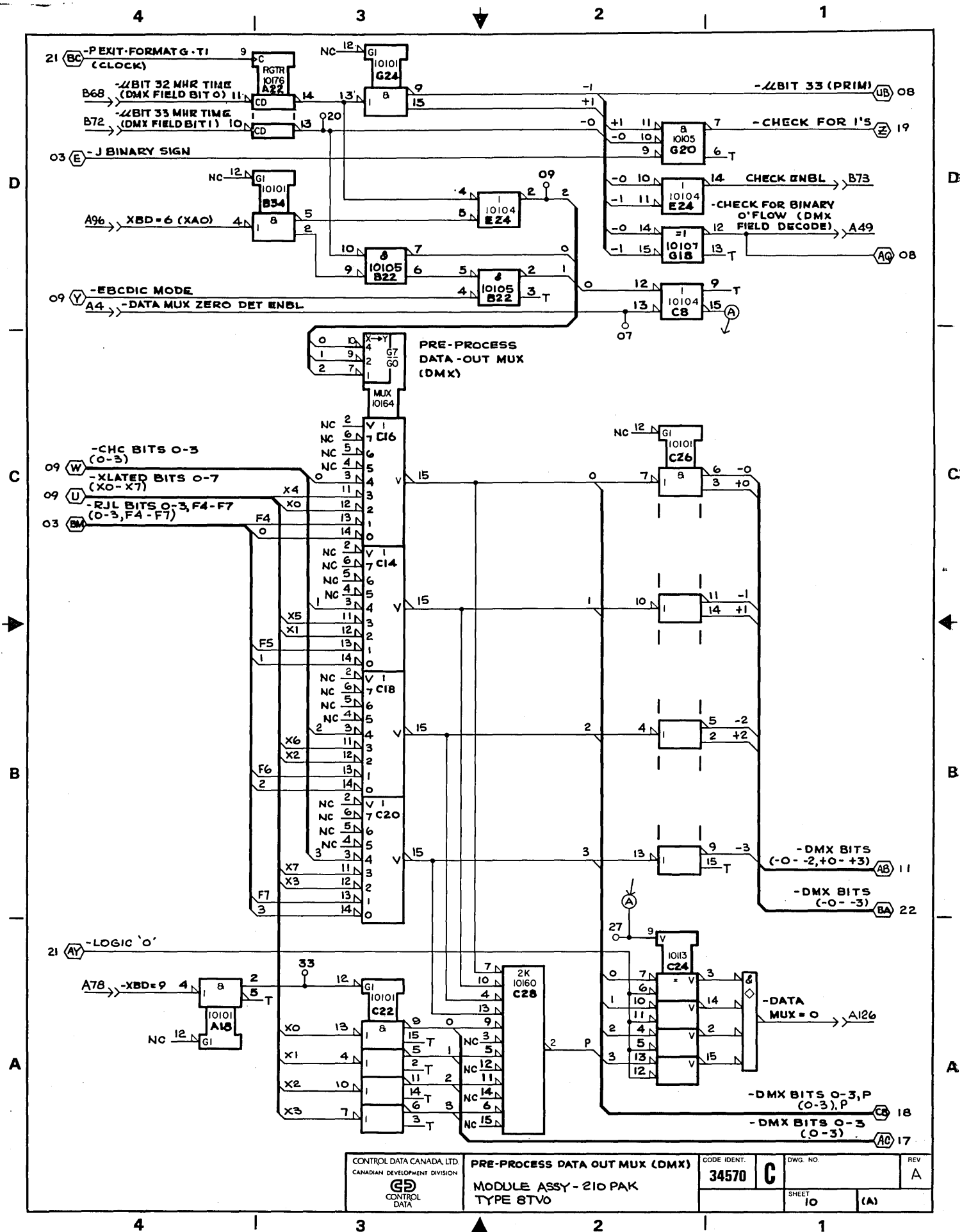
2

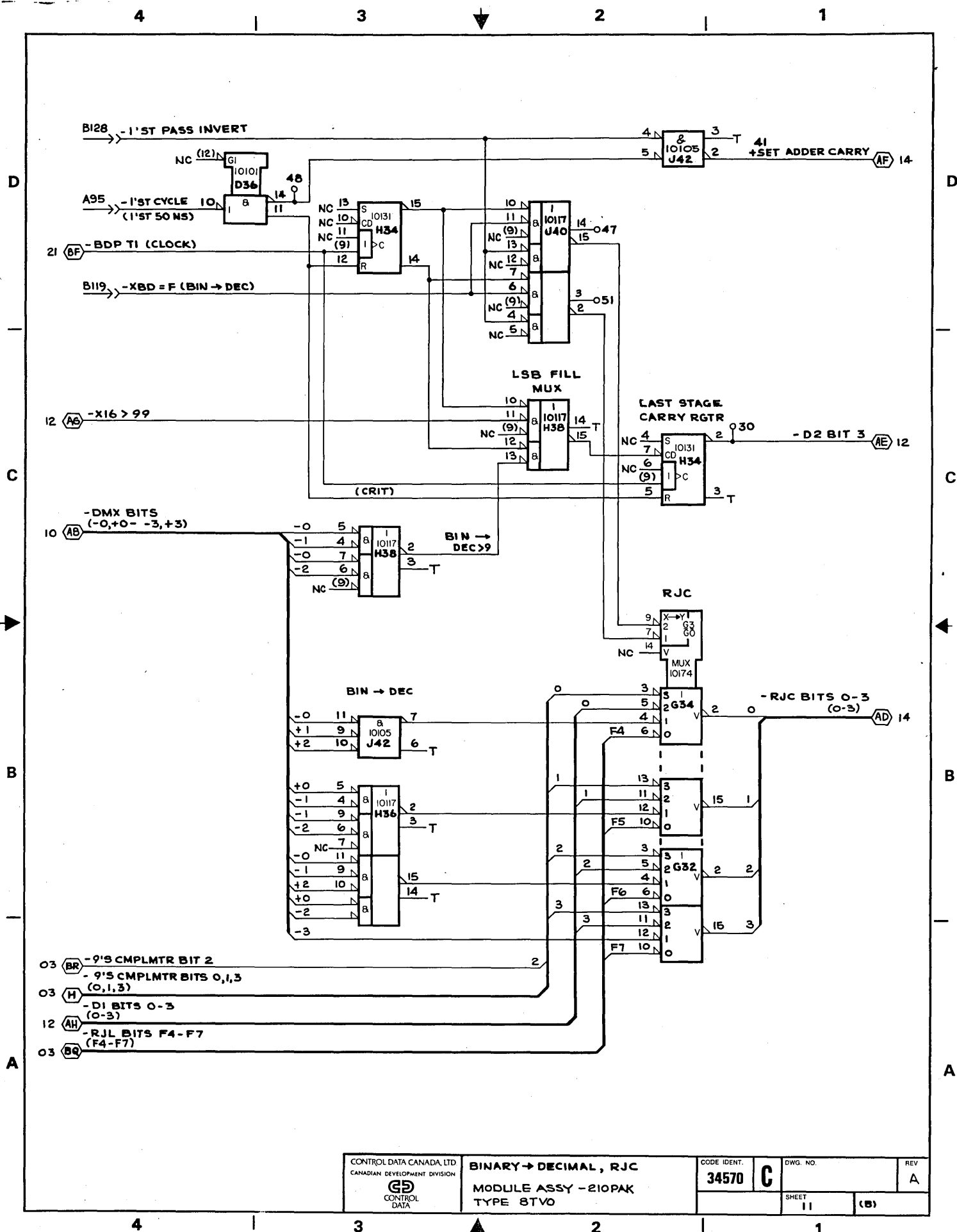
1

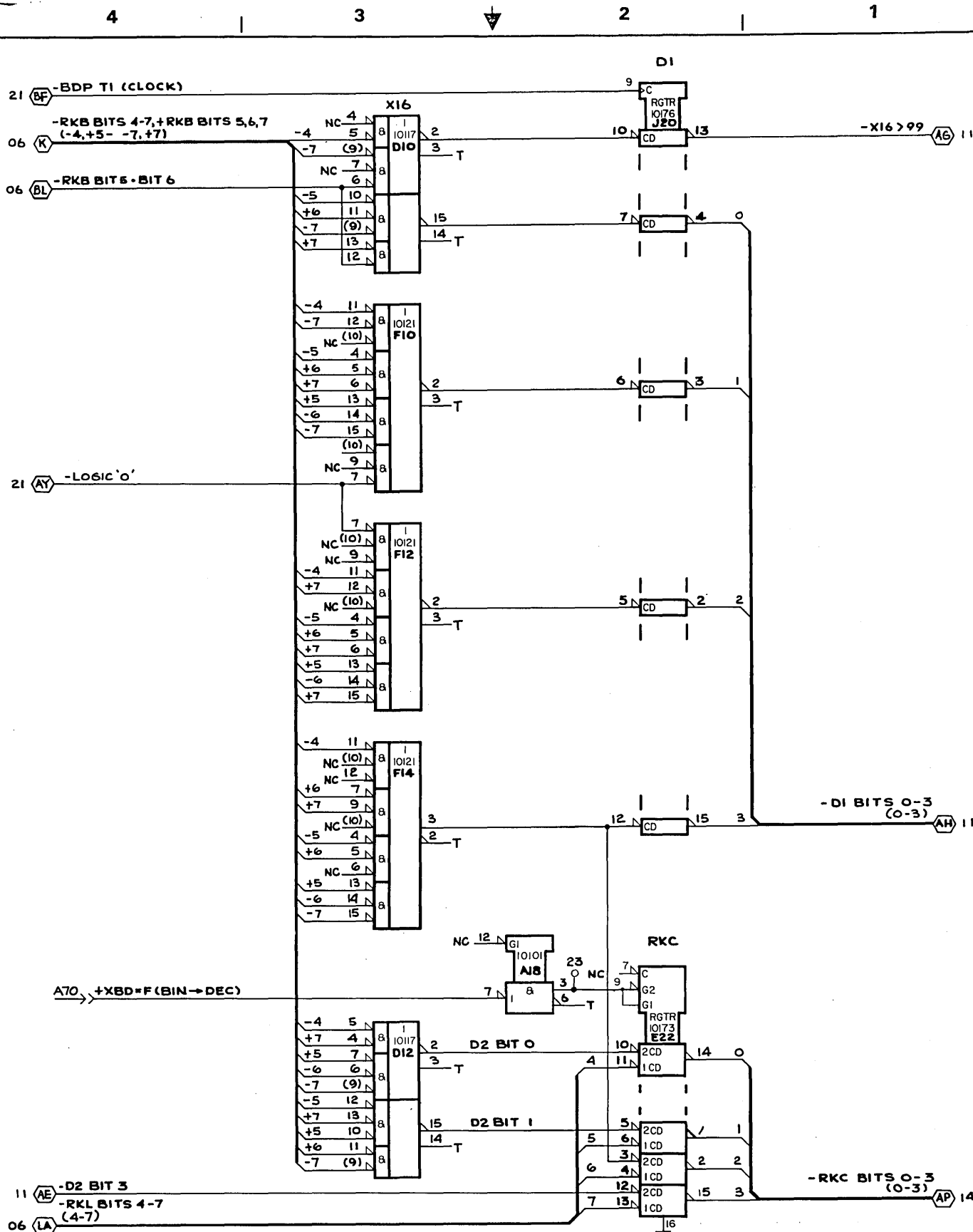












CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

RKC, D1, X16  
MODULE ASSY - 210PAK  
TYPE 8TVO

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET  
12 (C)

4

3

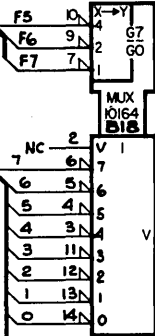
2

1

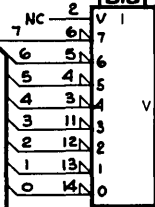
## BYTE SCAN

-RJL BITS F5-F7  
(F5-F7)

03 (BN)

-RKL BITS 0-7  
(0-7)

06 (L)

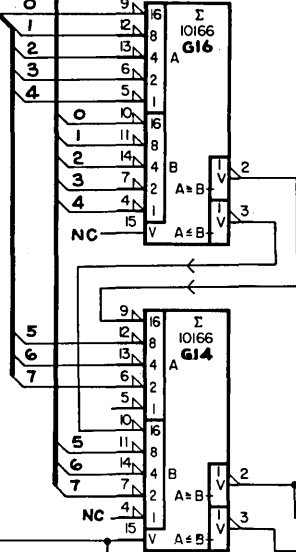


-SCAN HIT → A74

## BYTE COMPARE

-RKL BITS 0-7  
(0-7)

03 (G)

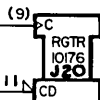


-RJL ≥ RKL → B79

-BYTES ≠ Y → B63

A73 → -BYTE COMP

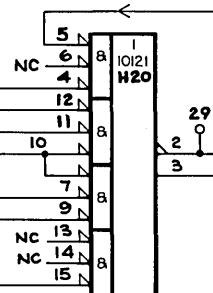
21 (BF) -BDP TI (CLOCK)



-BYTES NOT EQUAL DLY'D → B95

## LATCH RJL, RKL CONT

B67 → -XBD=E (BYTE SCAN)

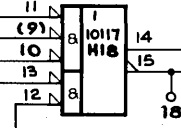
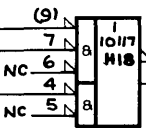


+LATCH RJL (AN) 03

21 (AY) -LOGIC '0'

A64 → -XBD=3 (RKL SEL'D)

B64 → -RESTART CLEAR



+LATCH RKL (AX) 06

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

BYTE SCAN, BYTE COMPARE  
LATCH RJL, RKL CONT  
MODULE ASSY-210PAK  
TYPE 8TVO

CODE IDENT.  
34570

DWR. NO.  
C

REV  
A

SHEET  
13

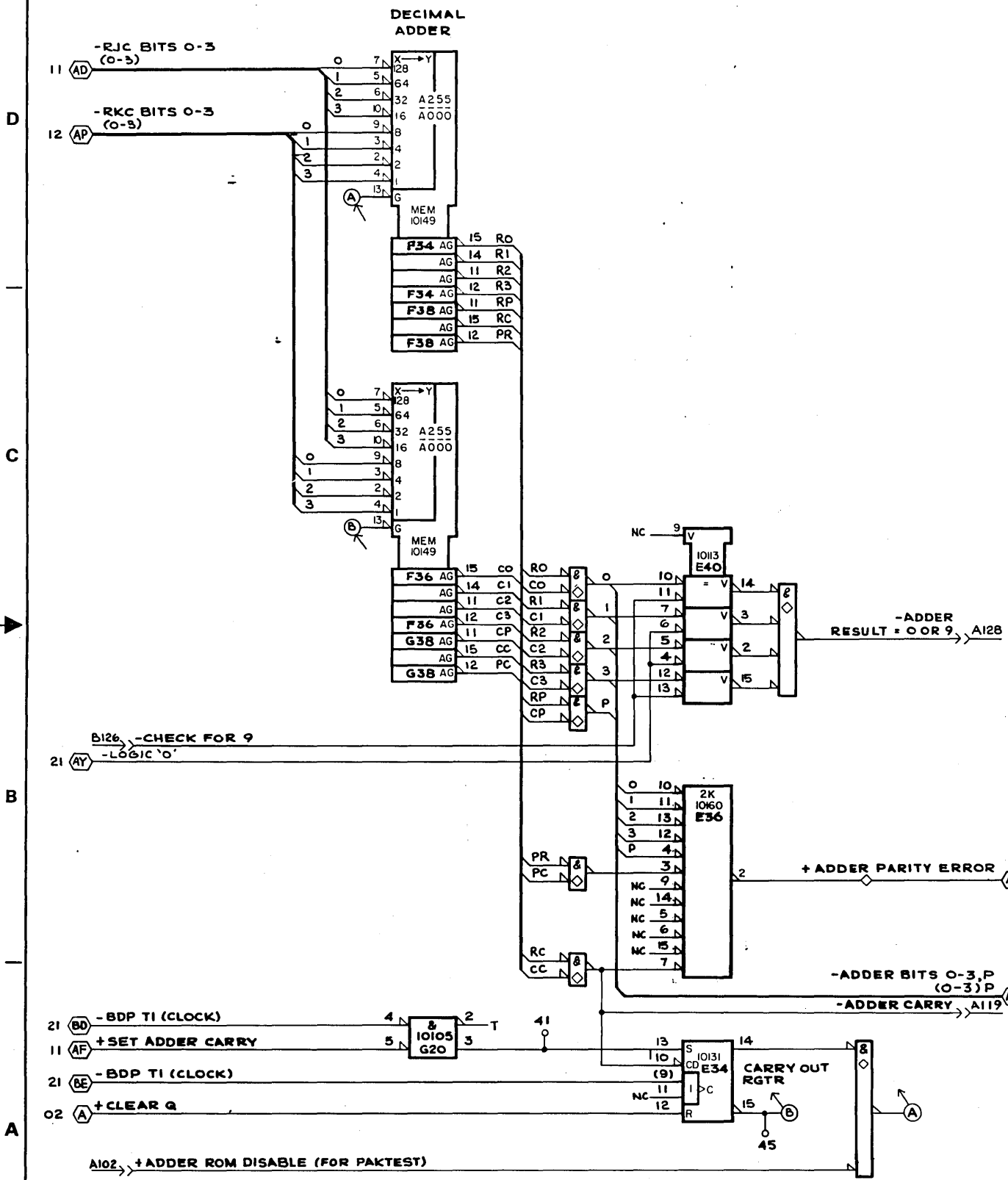
(D)

4

3

2

1



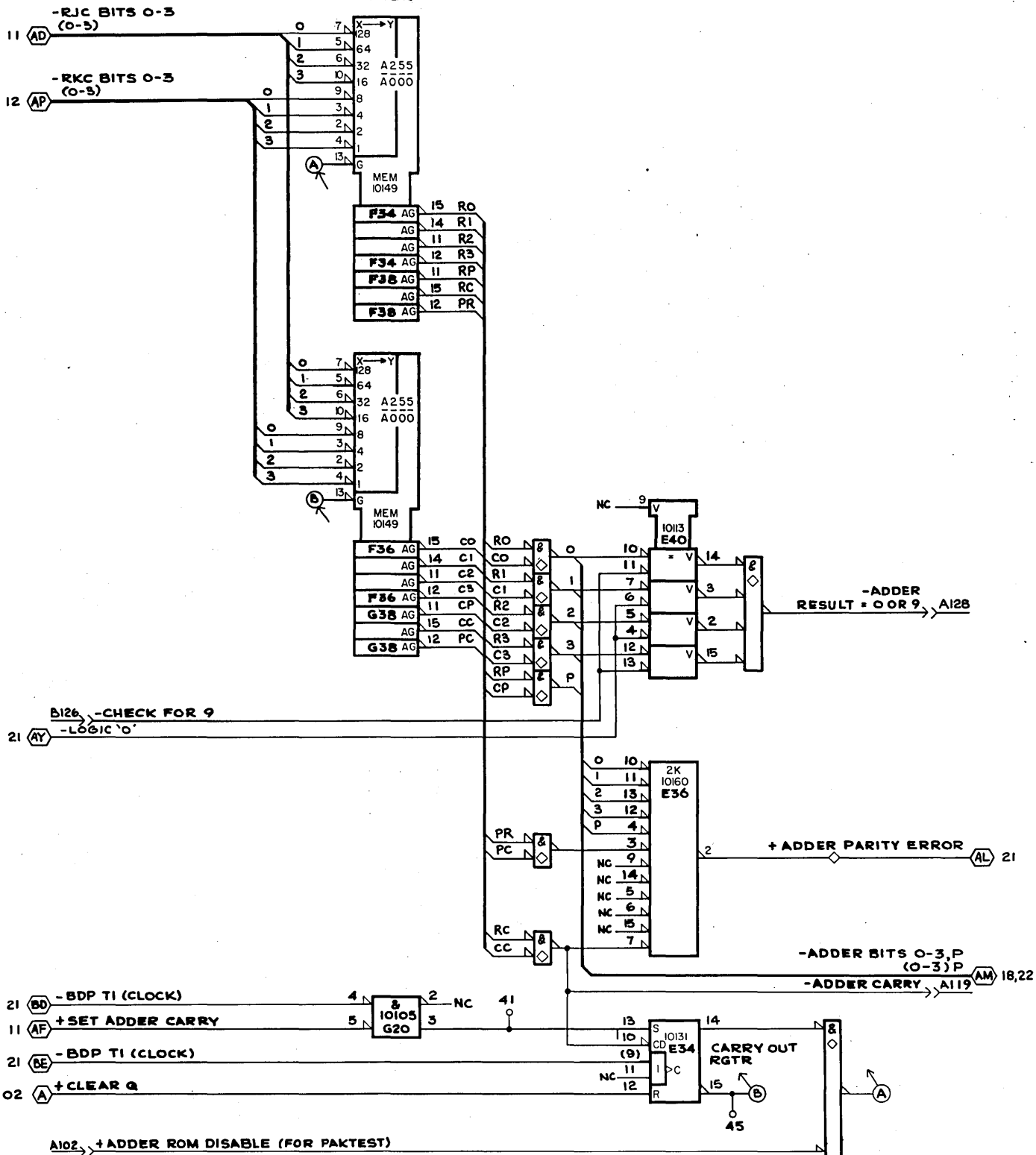
4

3

2

1

# DECIMAL ADDER



NOTE: THIS DRAWING IS APPLICABLE  
ONLY TO PWB P/N 19266580

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION



CONTROL  
DATA

## DECIMAL ADDER

MODULE ASSY - 210PAK  
TYPE 8TV0

CODE IDENT.

34570

DWG. NO.

C

REV

F

SHEET

14 A

(E)

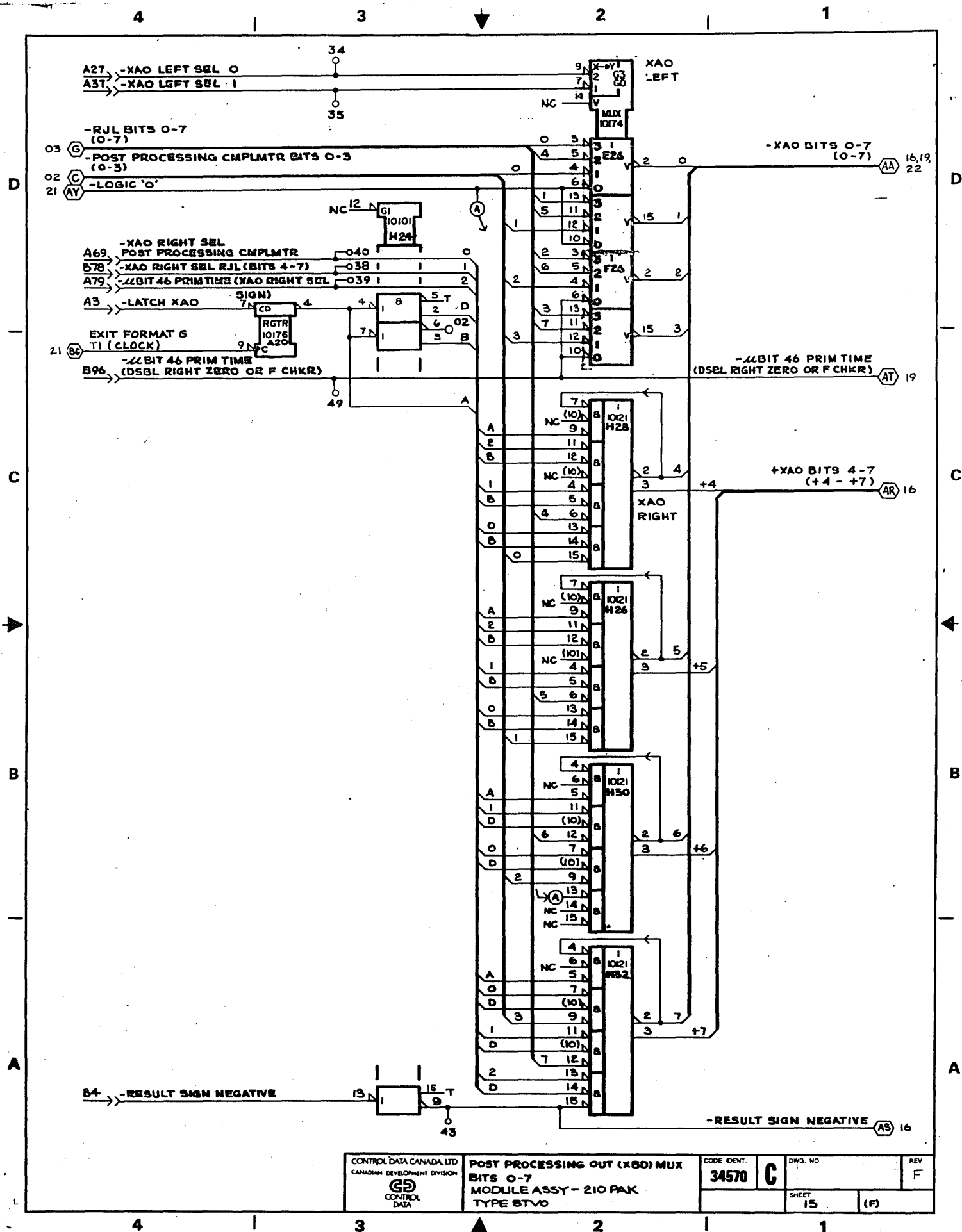
4

3

2

1





4

3

2

1

D

D

C

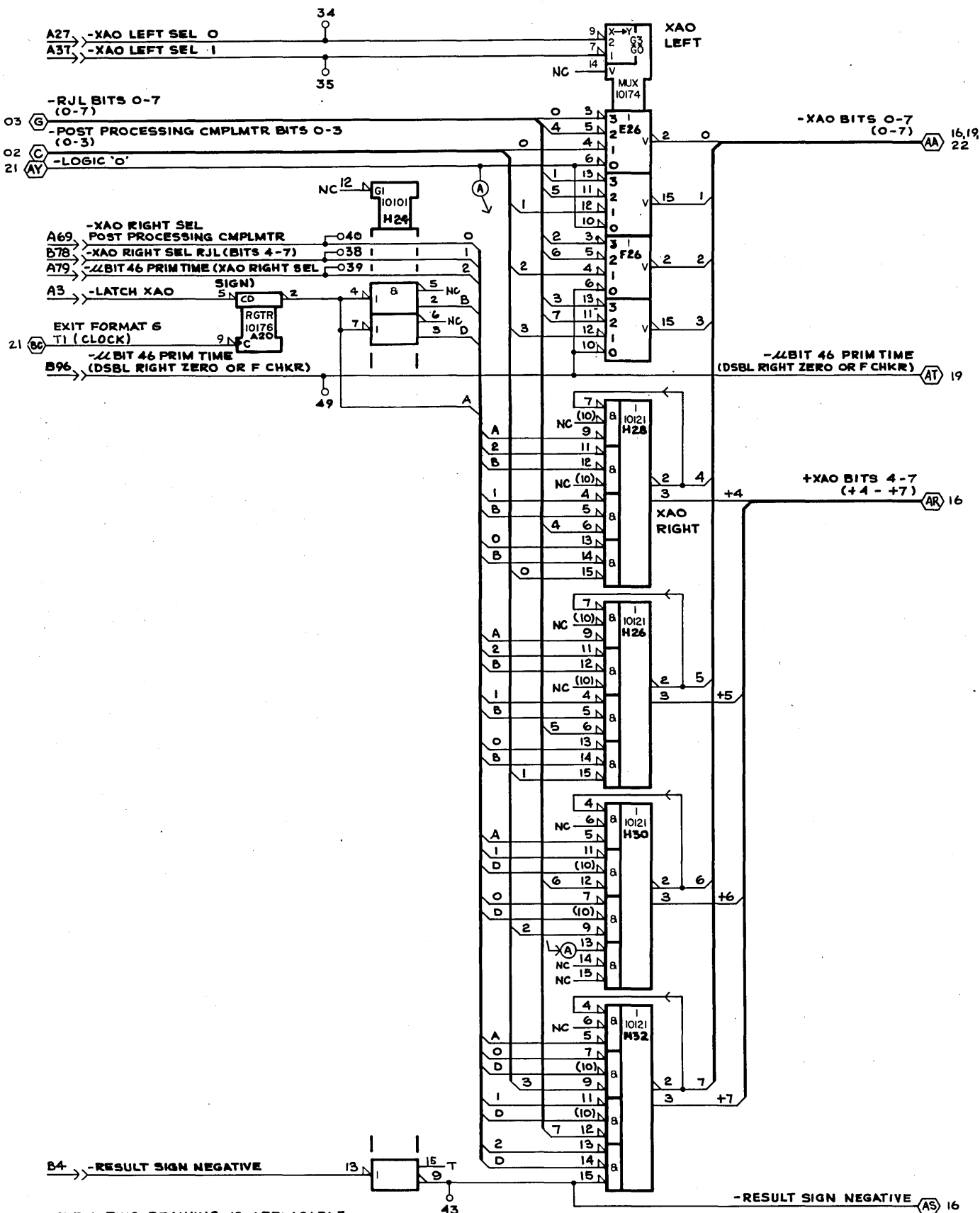
C

B

B

A

A



NOTE : THIS DRAWING IS APPLICABLE  
TO PWB P/N 1926 6580 ONLY.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
GD  
CONTROL  
DATA

POST PROCESSING OUT (XBO) MUX  
BITS 0-7  
MODULE ASSY - 210 PAK  
TYPE 8TVO

CODE IDENT.  
34570

C

DWG. NO.

SHEET  
15 A

REV

(F)

4

3

2

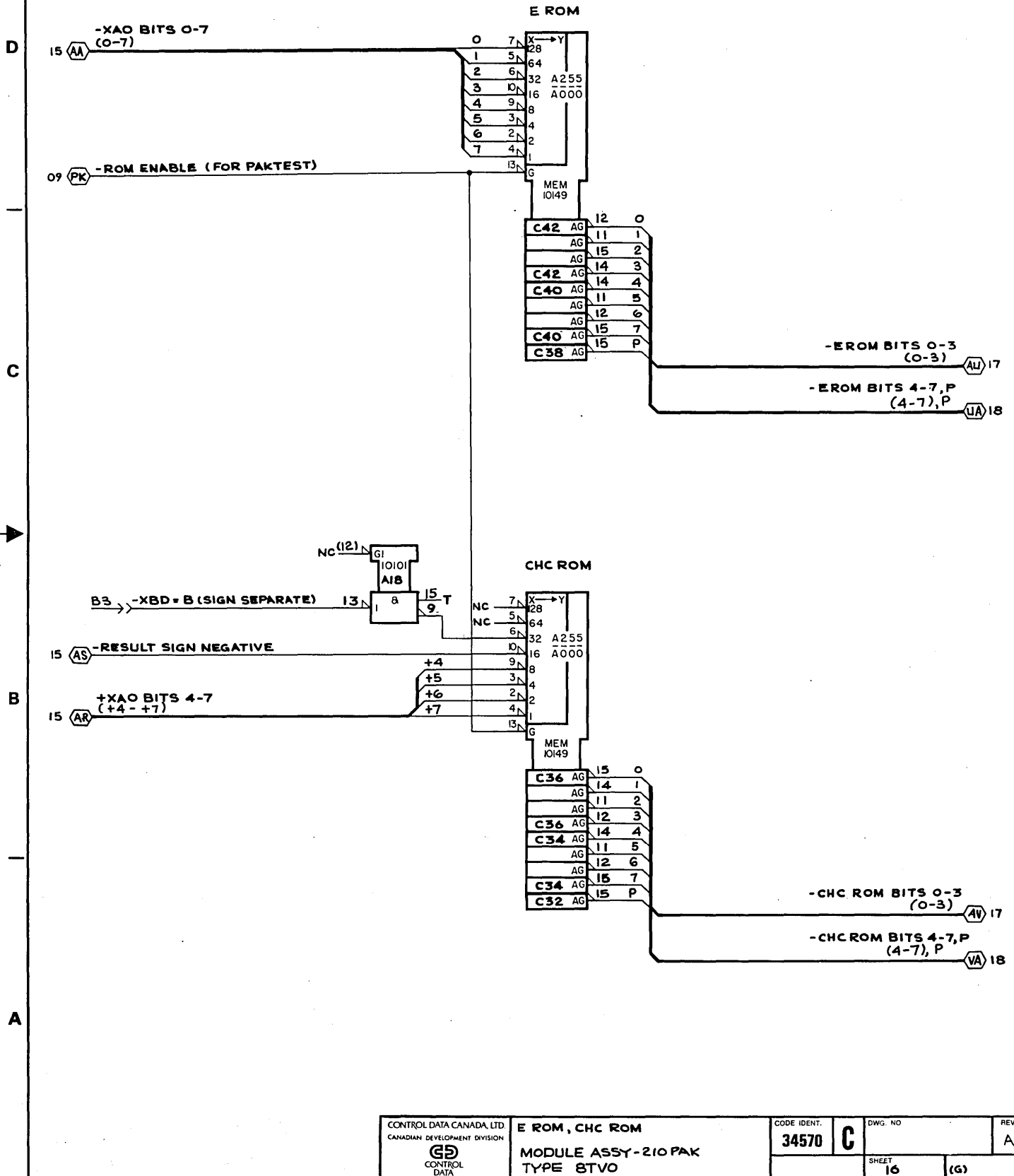
1

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

E ROM, CHC ROM  
MODULE ASSY-210 PAK  
TYPE 8TVO

CODE IDENT.  
34570

DWG. NO  
C

REV  
A

SHEET  
16

(G)

4

3

2

1

4

3

2

1

D

D

C

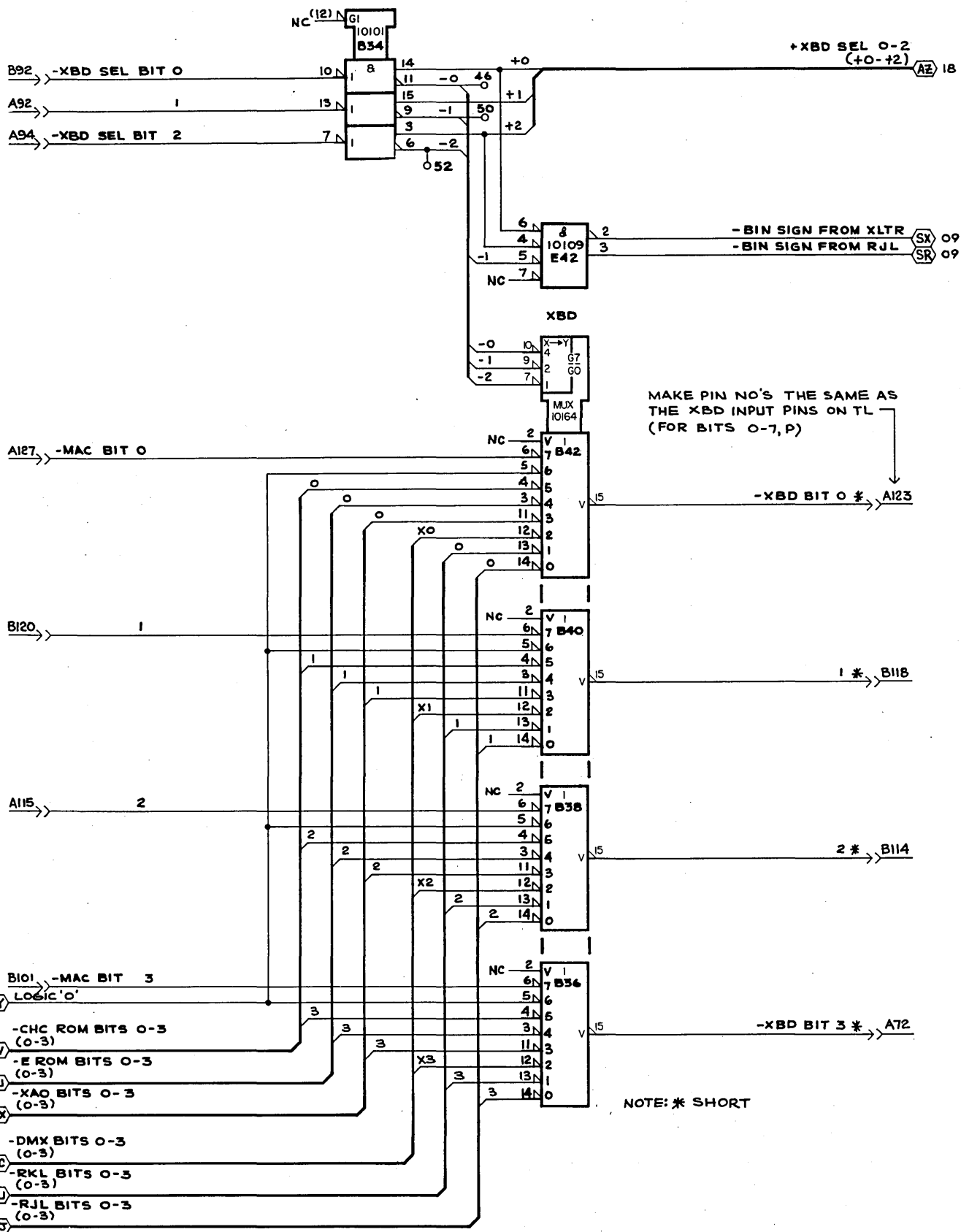
C

B

B

A

A



CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

BDP DATA OUT (XBD) MUX  
BITS 0-3  
MODULE ASSY-210 PAK  
TYPE 8TVO

CODE IDENT.  
34570

DWG. NO.  
C

REV  
A

SHEET  
17

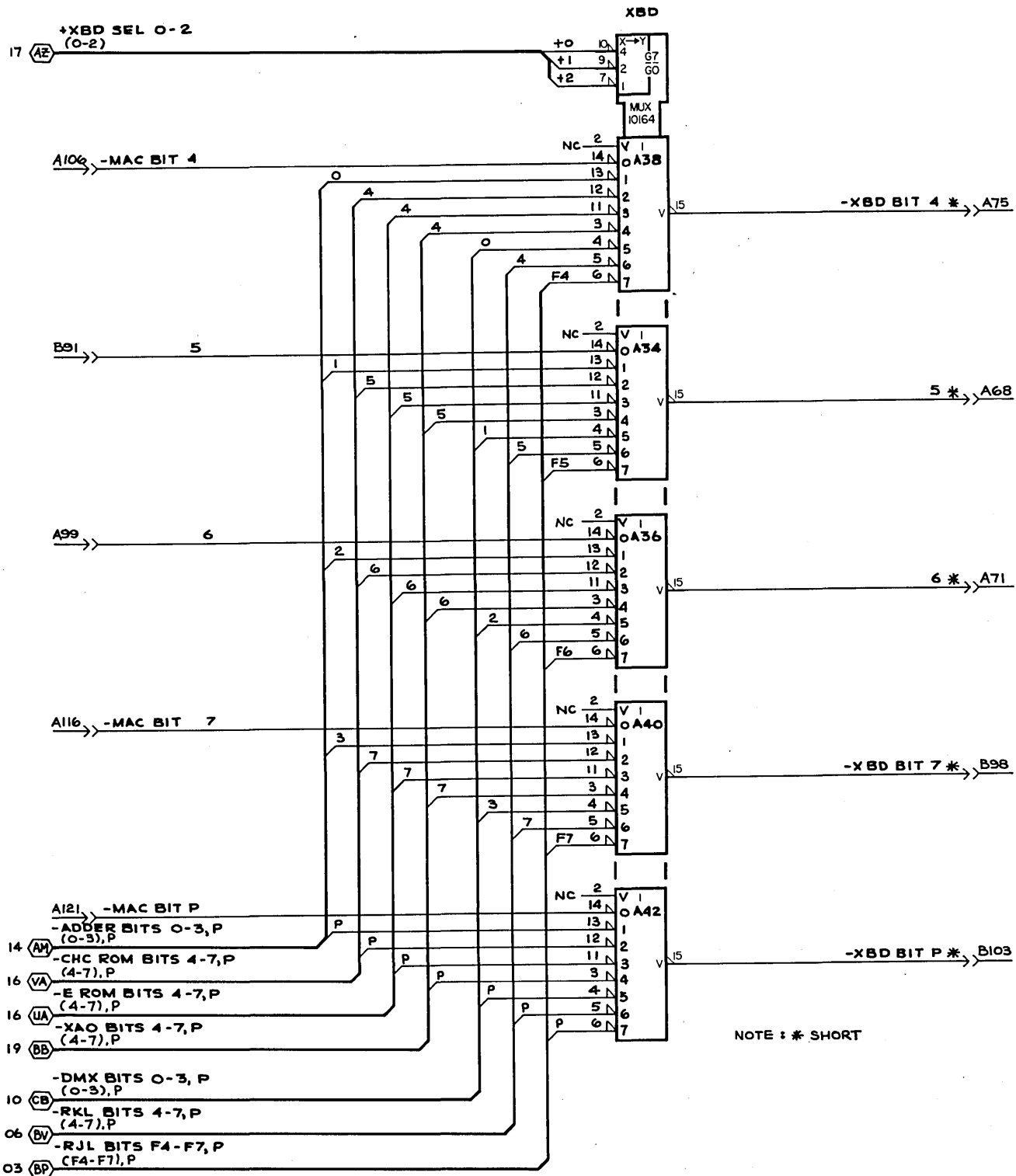
(H)

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

BDP DATA OUT (XBD) MUX  
BITS 4 - 7 & PARITY  
MODULE ASSY - 210 PAK  
TYPE 8TVO

CODE IDENT.  
34570

C

DWG. NO.

SHEET  
18

REV  
A

(J)

4

3

2

1

D

D

C

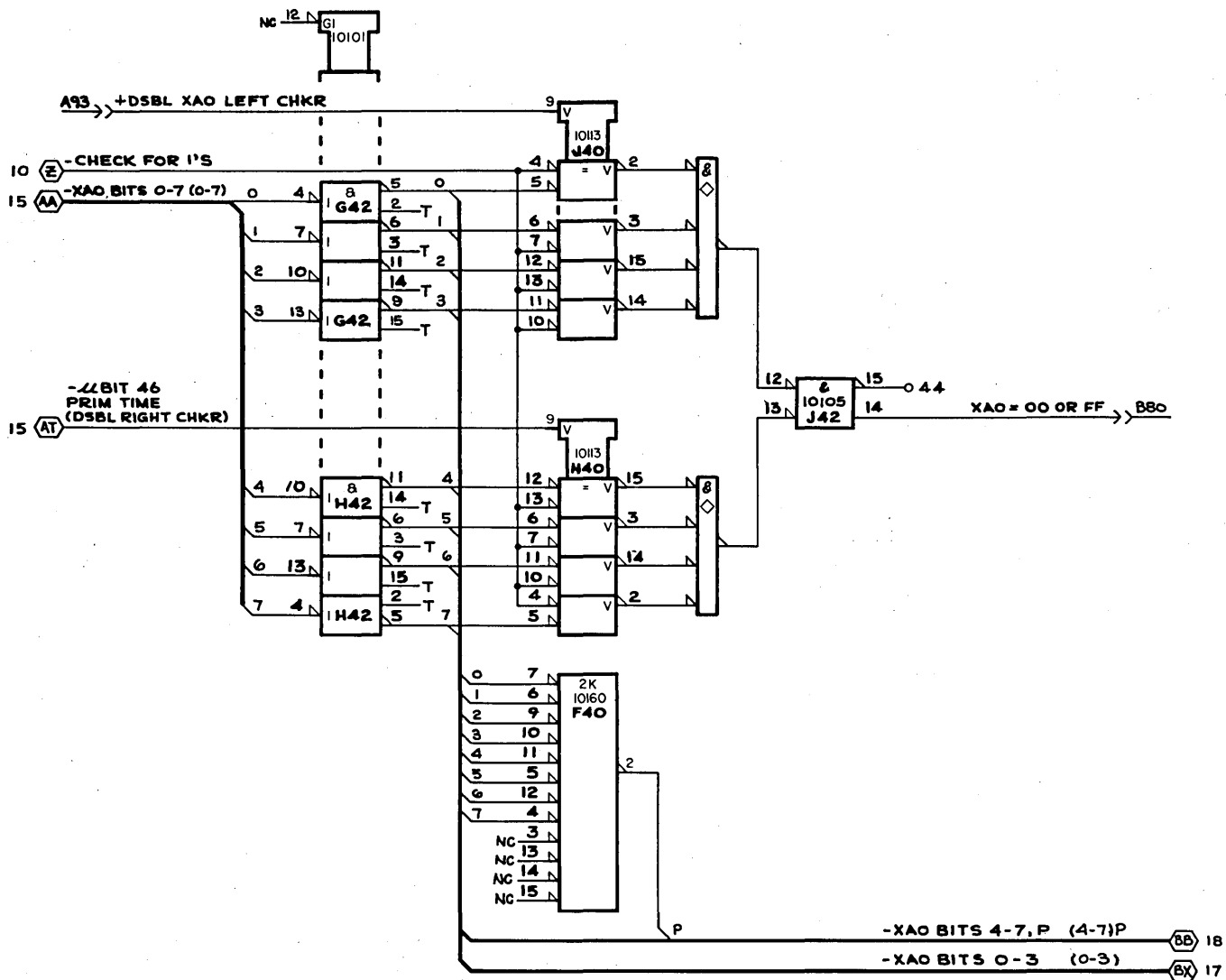
C

B

B

A

A



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

ZERO OR F CHKR

MODULE ASSY-210PAK  
TYPE 8TVO

CODE IDENT.

34570

DWG. NO.

C

REV

A

SHEET

19

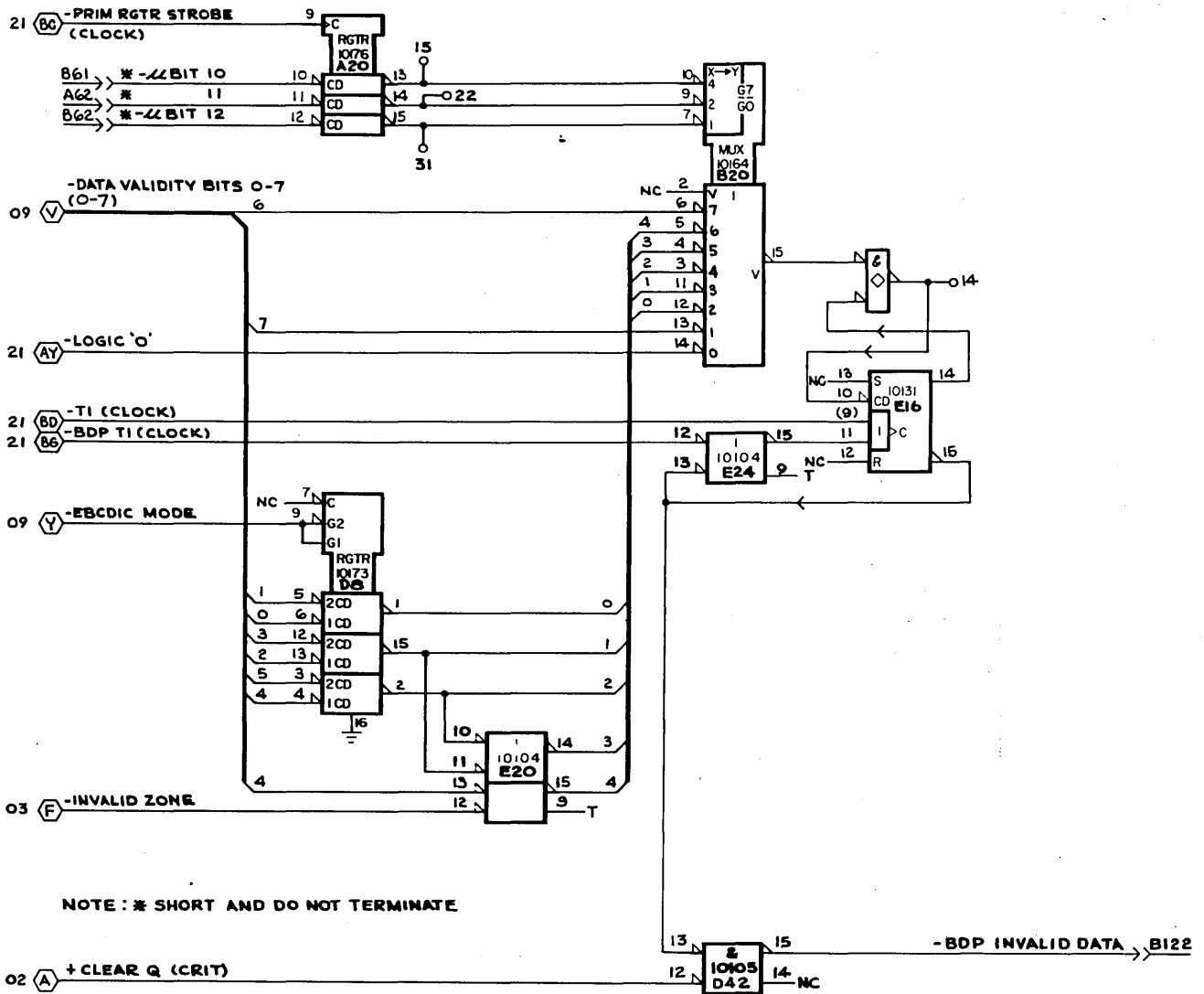
(K)

4

3

2

1

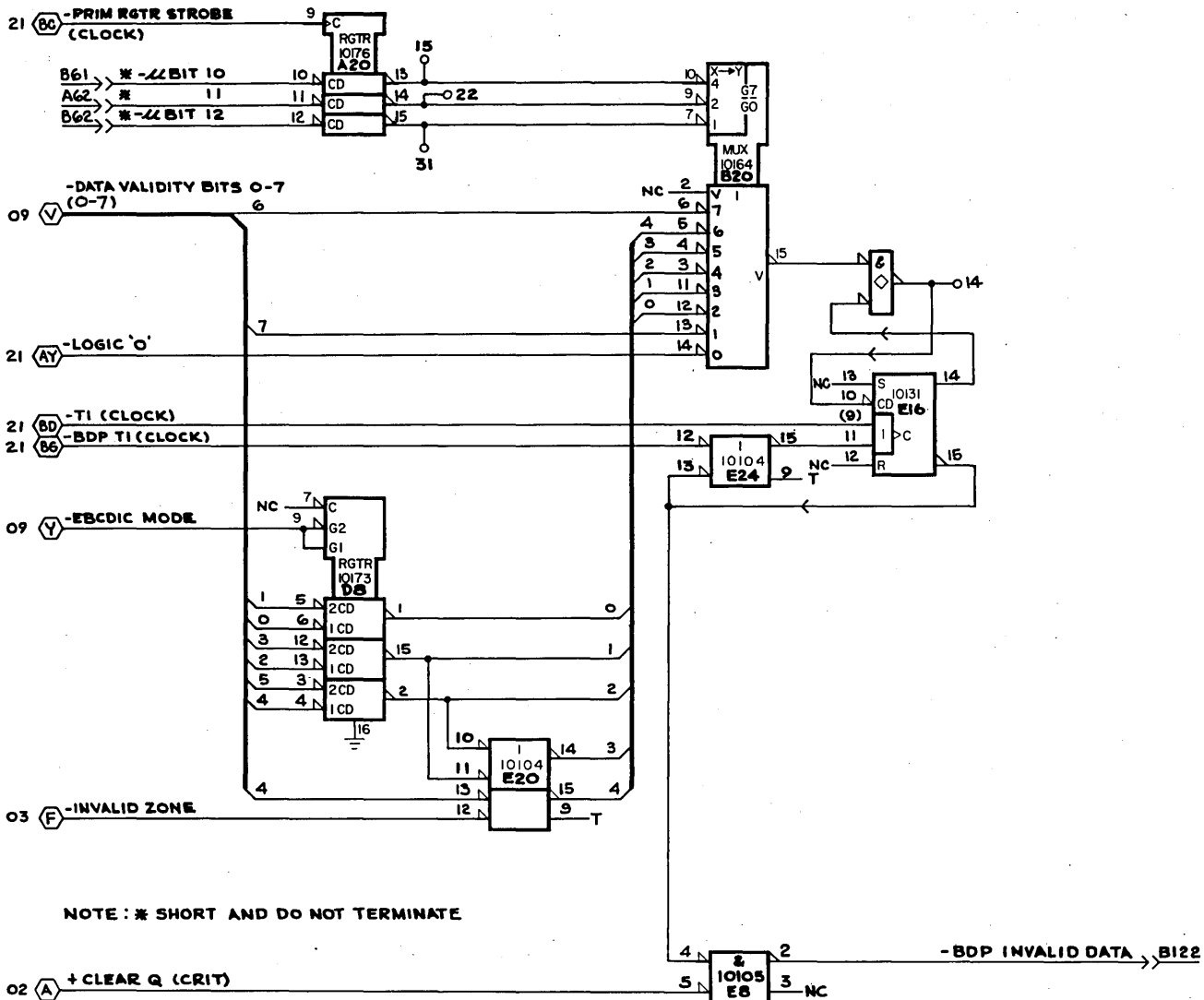


4

3

2

1



NOTE: THIS DRAWING IS APPLICABLE  
TO PWB P/N 19266580 ONLY.

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

VALIDITY TYPE SELECTION  
MODULE ASSY-210PAK  
TYPE 8TVO

CODE IDENT.  
34570

C

DWG. NO.

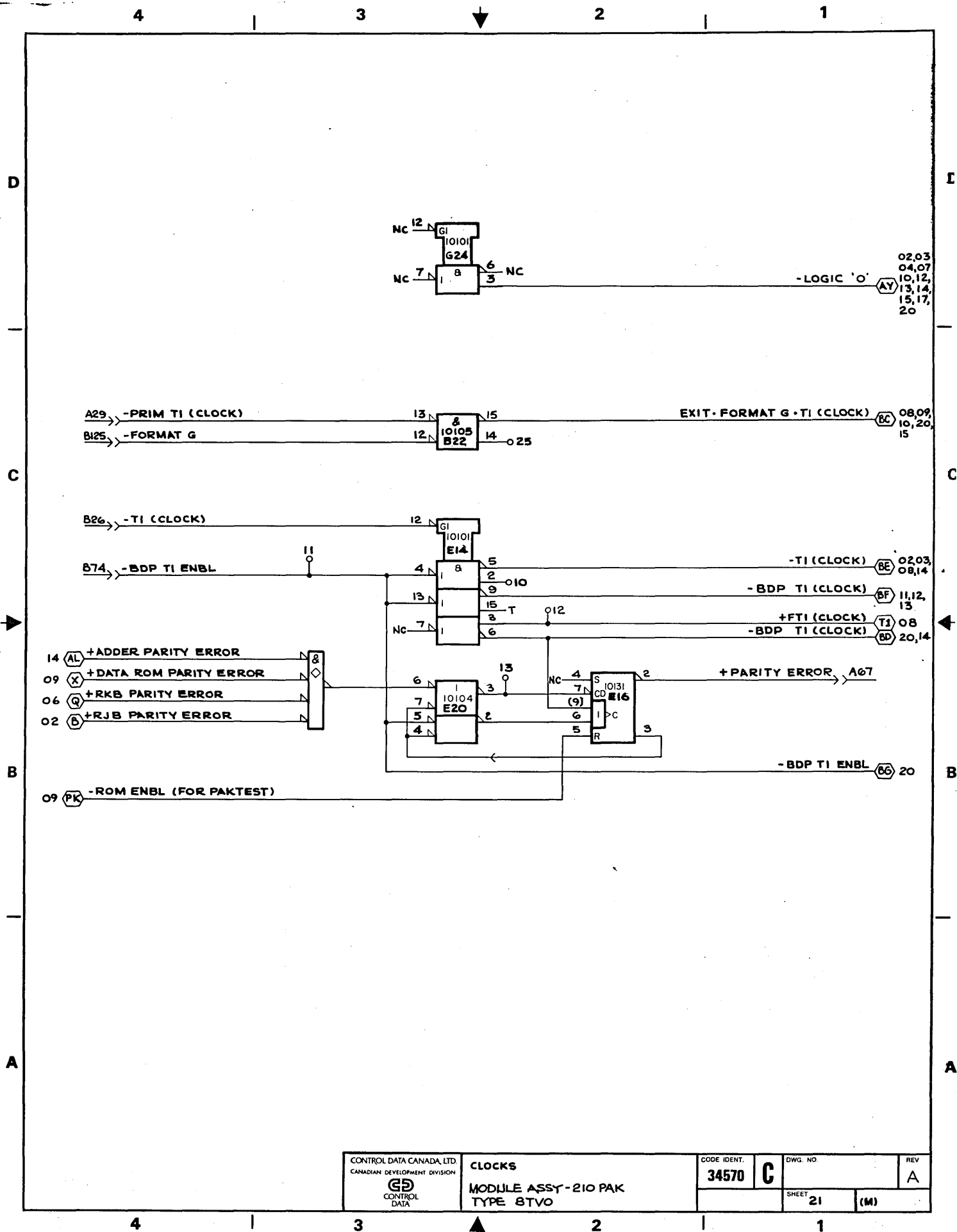
SHEET

20 A

(W)

REV  
F





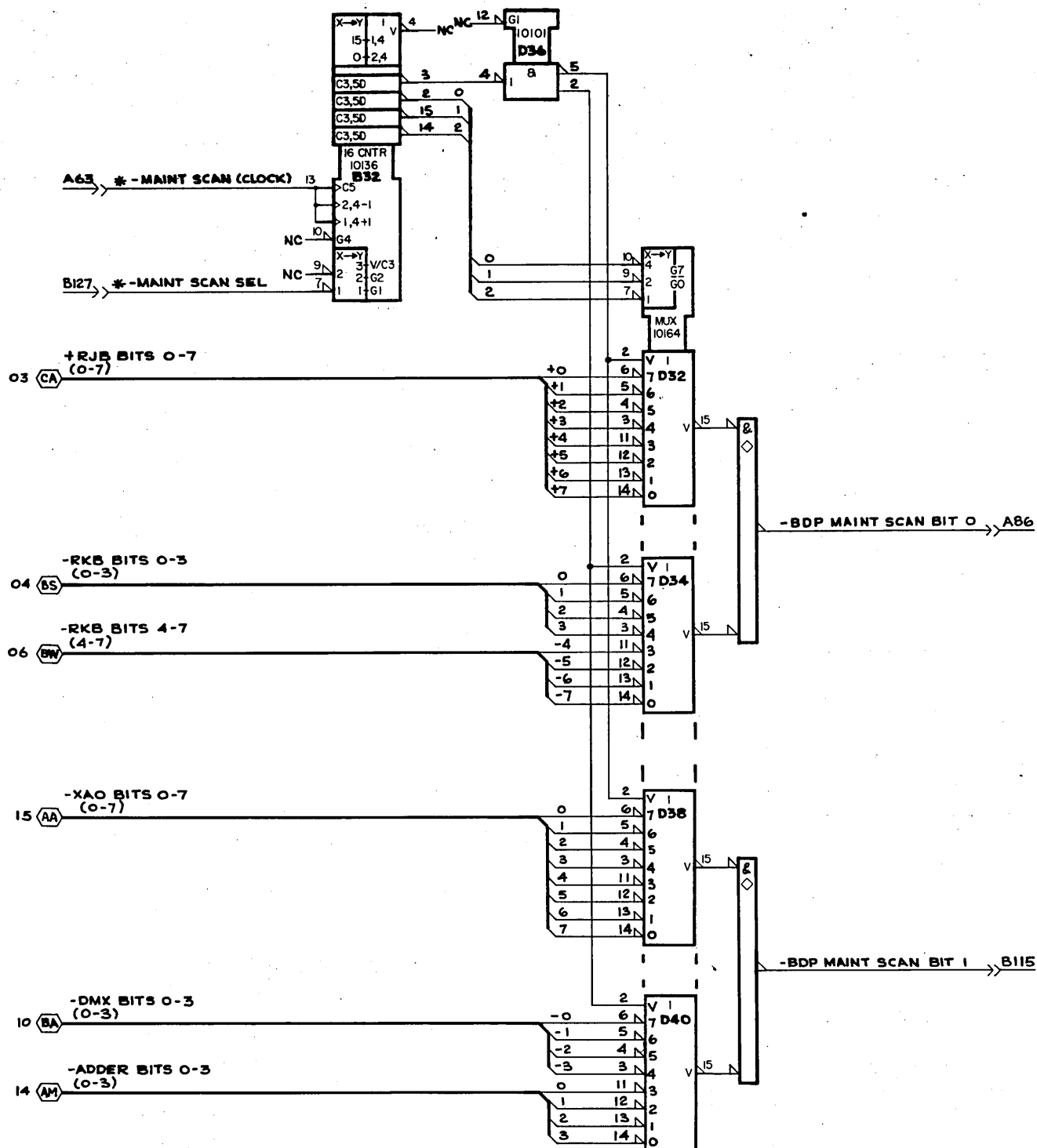
4

3

2

1

# MAINT SCAN CNTR



NOTE: \* DO NOT TERMINATE

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
**CD**  
CONTROL  
DATA

MAINT SCAN  
MODULE ASSY - 210 PAK  
TYPE 8TVO

CODE IDENT.  
**34570**

DWG. NO.  
**C**

SHEET  
**22**

(N)

REV  
**A**

4

3

2

1

## BDP DATA ROMS FOR 8TVO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
1 G22 19266850  
2 E10 19266851  
3 E02 19266852  
4 E06 19266853  
5 E12 19266854  
6 E04 19266855

## ADDR CONTENTS

00 00C301  
01 01C300  
02 02C300  
03 03C301  
04 37C300  
05 2D8701  
06 2E8702  
07 2F8703  
08 16C300  
09 05C301  
0A 254B05  
0B 000F05  
0C 0C0F07  
0D 000F00  
0E 0E0F06  
0F 0F0F07  
10 10C300  
11 11C301  
12 12C301  
13 13C300  
14 3C8702  
15 308700  
16 32C300  
17 26C300  
18 18C301  
19 19C300  
1A 3F0F07  
1B 274B04  
1C 1C0F06  
1D 1D0F01  
1E 1E0F07  
1F 1F0F06  
20 40C300  
21 4F8502  
22 7F8703  
23 7B8701  
24 5B8700  
25 6C8702  
26 50C109  
27 7D8701  
28 4D8701  
29 508700  
2A 5C0F07  
2B 4E0E06  
2C 6B0F05  
2D 604B04  
2E 4B0F04  
2F 614B05  
30 F0D106  
31 F1D118  
32 F2D128  
33 F3D138  
34 F4D146  
35 F5D158  
36 F6D168  
37 F7D178  
38 F8D188  
39 F9D198  
3A 7A0F06  
3B 5E0F06  
3C 4C0D0E  
3D 7E0F02  
3E 6E0F06  
3F 6F0F07

## ADDR CONTENTS

40 7C8703  
41 C1D118  
42 C2D128  
43 C3D138  
44 C4D148  
45 C5D158  
46 C6D168  
47 C7D178  
48 C8D188  
49 C9D198  
4A D15915  
4B D25925  
4C D35935  
4D D45940  
4E D55955  
4F D65965  
50 D7D170  
51 D8D180  
52 D9D190  
53 E2D300  
54 E3D301  
55 F4D300  
56 E5D301  
57 E6D301  
58 E7D300  
59 E8D300  
5A E95B04  
5B 4A0F0F  
5C E05B04  
5D 5A0F02  
5E 5F0F07  
5F 0D0F05  
60 79C300  
61 81C301  
62 82C301  
63 83C300  
64 84C301  
65 85C300  
66 86C300  
67 87C301  
68 88C301  
69 89C300  
6A 914B05  
6B 924B05  
6C 934B04  
6D 944B00  
6E 954B04  
6F 964B04  
70 97C300  
71 98C300  
72 99C301  
73 A2D301  
74 A3D300  
75 A4D301  
76 A5D300  
77 A6D300  
78 A7D301  
79 A8D301  
7A A95B05  
7B C0590D  
7C 6A0F07  
7D D05900  
7E A15B04  
7F 074B05

## ADDR CONTENTS

80 20C300  
81 21C301  
82 22C301  
83 23C300  
84 24C301  
85 15C300  
86 06C301  
87 17C301  
88 28C301  
89 29C300  
8A 2A0F06  
8B 2B0F04  
8C 2C0F06  
8D 094B01  
8E 0A0F07  
8F 1B0F04  
90 30C301  
91 31C300  
92 1A8706  
93 33C301  
94 34C300  
95 35C301  
96 36C301  
97 08C300  
98 38C300  
99 39C301  
9A 3A0F07  
9B 3B0F05  
9C 044B05  
9D 144B01  
9E 3E0F06  
9F E15D05  
A0 41E300  
A1 42E300  
A2 43E301  
A3 44E300  
A4 45E301  
A5 46E301  
A6 47E300  
A7 48E300  
A8 49E301  
A9 51E301  
AA 526B01  
AB 536B00  
AC 546B01  
AD 556B00  
AE 566B03  
AF 576B01  
B0 58E301  
B1 59E300  
B2 62E301  
B3 63E300  
B4 64E301  
B5 65E300  
B6 66E300  
B7 67E301  
B8 68E301  
B9 69E300  
BA 70B001  
BB 716B00  
BC 726B00  
BD 736B01  
BE 746B00  
BF 756B01

## ADDR CONTENTS

C0 76E301  
C1 77E300  
C2 78E300  
C3 60E301  
C4 8AA702  
C5 8BA700  
C6 8CA702  
C7 8DA700  
C8 8EA703  
C9 8FA702  
CA 90B800  
CB 9A2F03  
CC 9B2F01  
CD 9C2F03  
CE 9D2F01  
CF 9E2F02  
D0 9FA703  
D1 A0F301  
D2 AAB701  
D3 ABB700  
D4 ACB701  
D5 ADB700  
D6 AEB700  
D7 AFB701  
D8 B0F300  
D9 B1F301  
DA B27B01  
DB B37B00  
DC B47B01  
DD B57B00  
DE B67B00  
DF B77B01  
E0 B8F301  
E1 B9F500  
E2 BAB700  
E3 BB8701  
E4 BCB700  
E5 BDB701  
E6 BEB701  
E7 BFB700  
E8 CAB701  
E9 CBB700  
EA CC3F01  
EB CD3F00  
EC CE3F00  
ED CF3F01  
EE DA3F00  
EF DB3F01  
F0 DCB700  
F1 DDB701  
F2 DEB701  
F3 DFB700  
F4 EAB700  
F5 EBB701  
F6 ECB700  
F7 EDB701  
F8 EEB701  
F9 EFB700  
FA FA3F01  
FB FB3F00  
FC FC3F01  
FD FD3F00  
FE FE3F00  
FF FF3F01

# DECIMAL ADDER ROMS FOR 8TVO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 F34 19266856  
 2 F38 19266857  
 3 F36 19266858  
 4 G38 19266859

ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS	ADDR CONTENTS
00 0810	40 4058	80 8098	C0 F8F8
01 1020	41 5868	81 980E	C1 F8F8
02 2038	42 6870	82 0E16	C2 F8F8
03 3840	43 7080	83 1626	C3 F8F8
04 4058	44 8098	84 263E	C4 F8F8
05 5868	45 980E	85 3E46	C5 F8F8
06 6870	46 0E16	86 465E	C6 F8F8
07 7080	47 1626	87 5E6E	C7 F8F8
08 8098	48 263E	88 6E76	C8 F8F8
09 980E	49 3E46	89 7686	C9 F8F8
0A F8F8	4A F8F8	8A F8F8	CA F8F8
0B F8F8	4B F8F8	8B F8F8	CB F8F8
0C F8F8	4C F8F8	8C F8F8	CC F8F8
0D F8F8	4D F8F8	8D F8F8	CD F8F8
0E F8F8	4E F8F8	8E F8F8	CE F8F8
0F F8F8	4F F8F8	8F F8F8	CF F8F8
10 1020	50 5868	90 980E	D0 F8F8
11 2038	51 6870	91 0E16	D1 F8F8
12 3840	52 7080	92 1626	D2 F8F8
13 4058	53 8098	93 263E	D3 F8F8
14 5868	54 980E	94 3E46	D4 F8F8
15 6870	55 0E16	95 465E	D5 F8F8
16 7080	56 1626	96 5E6E	D6 F8F8
17 8098	57 263E	97 6E76	D7 F8F8
18 980E	58 3E46	98 7686	D8 F8F8
19 0E16	59 465E	99 869E	D9 F8F8
1A F8F8	5A F8F8	9A F8F8	DA F8F8
1B F8F8	5B F8F8	9B F8F8	DB F8F8
1C F8F8	5C F8F8	9C F8F8	DC F8F8
1D F8F8	5D F8F8	9D F8F8	DD F8F8
1E F8F8	5E F8F8	9E F8F8	DE F8F8
1F F8F8	5F F8F8	9F F8F8	DF F8F8
20 2038	60 6870	A0 F8F8	E0 F8F8
21 3840	61 7080	A1 F8F8	E1 F8F8
22 4058	62 8098	A2 F8F8	E2 F8F8
23 5868	63 980E	A3 F8F8	E3 F8F8
24 6870	64 0E16	A4 F8F8	E4 F8F8
25 7080	65 1626	A5 F8F8	E5 F8F8
26 8098	66 263E	A6 F8F8	E6 F8F8
27 980E	67 3E46	A7 F8F8	E7 F8F8
28 0E16	68 465E	A8 F8F8	E8 F8F8
29 1626	69 5E6E	A9 F8F8	E9 F8F8
2A F8F8	6A F8F8	AA F8F8	EA F8F8
2B F8F8	6B F8F8	AB F8F8	EB F8F8
2C F8F8	6C F8F8	AC F8F8	EC F8F8
2D F8F8	6D F8F8	AD F8F8	ED F8F8
2E F8F8	6E F8F8	AE F8F8	EE F8F8
2F F8F8	6F F8F8	AF F8F8	EF F8F8
30 3840	70 7080	B0 F8F8	FO F8F8
31 4058	71 8098	B1 F8F8	F1 F8F8
32 5868	72 980E	B2 F8F8	F2 F8F8
33 6870	73 0E16	B3 F8F8	F3 F8F8
34 7080	74 1626	B4 F8F8	F4 F8F8
35 8098	75 263E	B5 F8F8	F5 F8F8
36 980E	76 3E46	B6 F8F8	F6 F8F8
37 0E16	77 465E	B7 F8F8	F7 F8F8
38 1626	78 5E6E	B8 F8F8	F8 F8F8
39 263E	79 6E76	B9 F8F8	F9 F8F8
3A F8F8	7A F8F8	BA F8F8	FA F8F8
3B F8F8	7B F8F8	BB F8F8	FB F8F8
3C F8F8	7C F8F8	BC F8F8	FC F8F8
3D F8F8	7D F8F8	BD F8F8	FD F8F8
3E F8F8	7E F8F8	BE F8F8	FE F8F8
3F F8F8	7F F8F8	BF F8F8	FF F8F8

4

3

2

1

## EBCDIC ROMS FOR 8TVO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 C42 19266860  
 2 C40 19266861  
 3 C38 19266862

## ADDR CONTENTS

00 001  
 01 010  
 02 020  
 03 031  
 04 9C1  
 05 091  
 06 860  
 07 7F0  
 08 970  
 09 8D1  
 0A 8E1  
 0B 080  
 0C 0C1  
 0D 0D0  
 0E 0E0  
 0F 0F1  
 10 100  
 11 111  
 12 121  
 13 130  
 14 900  
 15 850  
 16 080  
 17 871  
 18 181  
 19 190  
 1A 920  
 1B 8F0  
 1C 1C0  
 1D 1D1  
 1E 1E1  
 1F 1F0  
 20 800  
 21 811  
 22 821  
 23 830  
 24 841  
 25 0A1  
 26 171  
 27 181  
 28 881  
 29 890  
 2A 8A0  
 2B 881  
 2C 8C0  
 2D 051  
 2E 061  
 2F 070  
 30 901  
 31 910  
 32 160  
 33 931  
 34 940  
 35 951  
 36 961  
 37 040  
 38 980  
 39 991  
 3A 9A1  
 3B 980  
 3C 141  
 3D 150  
 3E 9E0  
 3F 1A0

## ADDR CONTENTS

40 200  
 41 A01  
 42 A10  
 43 A20  
 44 A31  
 45 A40  
 46 A51  
 47 A61  
 48 A70  
 49 A80  
 4A 580  
 4B 2E1  
 4C 3C1  
 4D 281  
 4E 2B1  
 4F 211  
 50 260  
 51 A91  
 52 AA1  
 53 A80  
 54 AC1  
 55 ADO  
 56 AEO  
 57 AF1  
 58 800  
 59 811  
 5A 500  
 5B 241  
 5C 2A0  
 5D 290  
 5E 380  
 5F 5E0  
 60 2D1  
 61 2F0  
 62 821  
 63 830  
 64 841  
 65 850  
 66 860  
 67 871  
 68 881  
 69 890  
 6A 7C0  
 6B 2C0  
 6C 250  
 6D 5F1  
 6E 3E0  
 6F 3F1  
 70 8A0  
 71 8B1  
 72 8C0  
 73 8D1  
 74 8E1  
 75 8F0  
 76 C01  
 77 C10  
 78 C20  
 79 601  
 7A 3A1  
 7B 230  
 7C 400  
 7D 271  
 7E 300  
 7F 221

## ADDR CONTENTS

80 C31  
 81 610  
 82 620  
 83 631  
 84 640  
 85 651  
 86 661  
 87 670  
 88 680  
 89 691  
 8A C40  
 8B C51  
 8C C61  
 8D C70  
 8E C80  
 8F C91  
 90 CA1  
 91 6A1  
 92 6B0  
 93 6C1  
 94 6D0  
 95 6E0  
 96 6F1  
 97 700  
 98 711  
 99 721  
 9A C80  
 9B CC1  
 9C CDO  
 9D CE0  
 9E CF1  
 9F D00  
 A0 D11  
 A1 7E1  
 A2 730  
 A3 741  
 A4 750  
 A5 760  
 A6 771  
 A7 781  
 A8 790  
 A9 7A0  
 AA D21  
 AB D30  
 AC D41  
 AD D50  
 AE D60  
 AF D71  
 B0 D81  
 B1 D90  
 B2 DA0  
 B3 DB1  
 B4 DC0  
 B5 DD1  
 B6 DE1  
 B7 DFO  
 B8 E00  
 B9 E11  
 BA E21  
 BB E30  
 BC E41  
 BD E50  
 BE E60  
 BF E71

## ADDR CONTENTS

C0 7B1  
 C1 411  
 C2 421  
 C3 430  
 C4 441  
 C5 450  
 C6 460  
 C7 471  
 C8 481  
 C9 490  
 CA E81  
 CB E90  
 CC EA0  
 CD EB1  
 CE EC0  
 CF ED1  
 D0 7D1  
 D1 4A0  
 D2 4B1  
 D3 4C0  
 D4 4D1  
 D5 4E1  
 D6 4F0  
 D7 501  
 D8 510  
 D9 520  
 DA EE1  
 DB EF0  
 DC F01  
 DD F10  
 DE F20  
 DF F31  
 E0 SC1  
 E1 9F1  
 E2 531  
 E3 540  
 E4 551  
 E5 561  
 E6 570  
 E7 580  
 E8 591  
 E9 5A1  
 EA F40  
 EB F51  
 EC F61  
 ED F70  
 EE F80  
 EF F91  
 F0 301  
 F1 310  
 F2 320  
 F3 331  
 F4 340  
 F5 351  
 F6 361  
 F7 370  
 F8 380  
 F9 391  
 FA FAl  
 FB F80  
 FC FC1  
 FD FDO  
 FE FE0  
 FF FFl

CONTROL DATA CANADA, LTD.  
 CANADIAN DEVELOPMENT DIVISION  
  
 CONTROL  
 DATA

EBCDIC ROMS FOR 8TVO  
 MODULE ASSY - 210 PAK  
 TYPE 8TVO

CODE IDENT.  
**34570**

DWG. NO.  
**C**

REV  
**A**

SHEET  
**25**

4

3

2

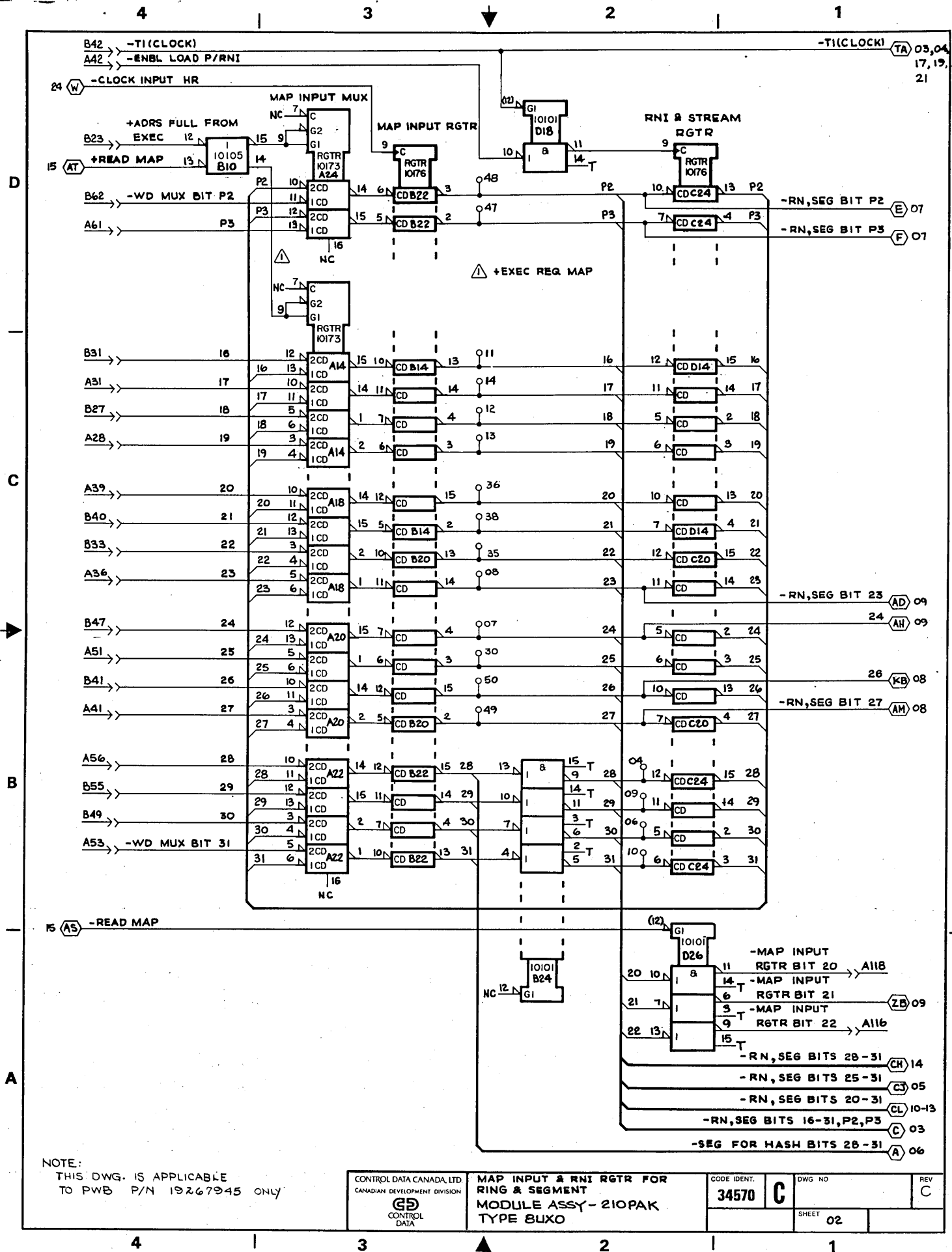
1

# CHC ROMS FOR 8TVO

- \* EACH COLUMN REPRESENTS THE CONTENTS OF ONE 10149
- \* LOGIC DIAGRAMS ILLUSTRATE OUTPUTS AS FOLLOWS:
  - MOST SIGNIFICANT BIT AT TOP OF SYMBOL
  - LEAST SIGNIFICANT BIT AT BOTTOM OF SYMBOL
- \* ALL VALUES ARE HEXADECIMAL

COL LOC P/N  
 1 C36 19266863  
 2 C34 19266864  
 3 C32 19266865

ADDR	CONTENTS	ADDR	CONTENTS	ADDR	CONTENTS	ADDR	CONTENTS
00	AA8	40	AA8	80	AA8	C0	AA8
01	AA8	41	AA8	81	AA8	C1	AA8
02	AA8	42	AA8	82	AA8	C2	AA8
03	AA8	43	AA8	83	AA8	C3	AA8
04	AA8	44	AA8	84	AA8	C4	AA8
05	AA8	45	AA8	85	AA8	C5	AA8
06	490	46	490	86	490	C6	490
07	488	47	488	87	488	C7	488
08	478	48	478	88	478	C8	478
09	460	49	460	89	460	C9	460
0A	450	4A	450	8A	450	CA	450
0B	448	4B	448	8B	448	CB	448
0C	430	4C	430	8C	430	CC	430
0D	428	4D	428	8D	428	CD	428
0E	418	4E	418	8E	418	CE	418
0F	788	4F	788	8F	788	CF	788
10	AA8	50	AA8	90	AA8	D0	AA8
11	AA8	51	AA8	91	AA8	D1	AA8
12	AA8	52	AA8	92	AA8	D2	AA8
13	AA8	53	AA8	93	AA8	D3	AA8
14	AA8	54	AA8	94	AA8	D4	AA8
15	AA8	55	AA8	95	AA8	D5	AA8
16	520	56	520	96	520	D6	520
17	510	57	510	97	510	D7	510
18	508	58	508	98	508	D8	508
19	4F0	59	4F0	99	4F0	D9	4F0
1A	4E8	5A	4E8	9A	4E8	DA	4E8
1B	4D8	5B	4D8	9B	4D8	DB	4D8
1C	4C0	5C	4C0	9C	4C0	DC	4C0
1D	4B8	5D	4B8	9D	4B8	DD	4B8
1E	4A0	5E	4A0	9E	4A0	DE	4A0
1F	7D8	5F	7D8	9F	7D8	DF	7D8
20	288	60	288	A0	288	E0	288
21	288	61	288	A1	288	E1	288
22	288	62	288	A2	288	E2	288
23	288	63	288	A3	288	E3	288
24	288	64	288	A4	288	E4	288
25	288	65	288	A5	288	E5	288
26	288	66	288	A6	288	E6	288
27	288	67	288	A7	288	E7	288
28	288	68	288	A8	288	E8	288
29	288	69	288	A9	288	E9	288
2A	288	6A	288	AA	288	EA	288
2B	288	6B	288	AB	288	EB	288
2C	288	6C	288	AC	288	EC	288
2D	288	6D	288	AD	288	ED	288
2E	288	6E	288	AE	288	EE	288
2F	288	6F	288	AF	288	EF	288
30	2D8	70	2D8	B0	2D8	FO	2D8
31	2D8	71	2D8	B1	2D8	F1	2D8
32	2D8	72	2D8	B2	2D8	F2	2D8
33	2D8	73	2D8	B3	2D8	F3	2D8
34	2D8	74	2D8	B4	2D8	F4	2D8
35	2D8	75	2D8	B5	2D8	F5	2D8
36	2D8	76	2D8	B6	2D8	F6	2D8
37	2D8	77	2D8	B7	2D8	F7	2D8
38	2D8	78	2D8	B8	2D8	F8	2D8
39	2D8	79	2D8	B9	2D8	F9	2D8
3A	2D8	7A	2D8	BA	2D8	FA	2D8
3B	2D8	7B	2D8	BB	2D8	FB	2D8
3C	2D8	7C	2D8	BC	2D8	FC	2D8
3D	2D8	7D	2D8	BD	2D8	FD	2D8
3E	2D8	7E	2D8	BE	2D8	FE	2D8
3F	2D8	7F	2D8	BF	2D8	FF	2D8



NOTE:  
THIS DWG. IS APPLICABLE  
TO PWB P/N 19267945 ONLY

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

MAP INPUT & RNI RGTR FOR  
RING & SEGMENT  
MODULE ASSY - 210PAK  
TYPE BUXO

CODE IDENT.	DWG NO	REV
34570	C	C
SHEET 02		

4

3

2

1

D

D

C

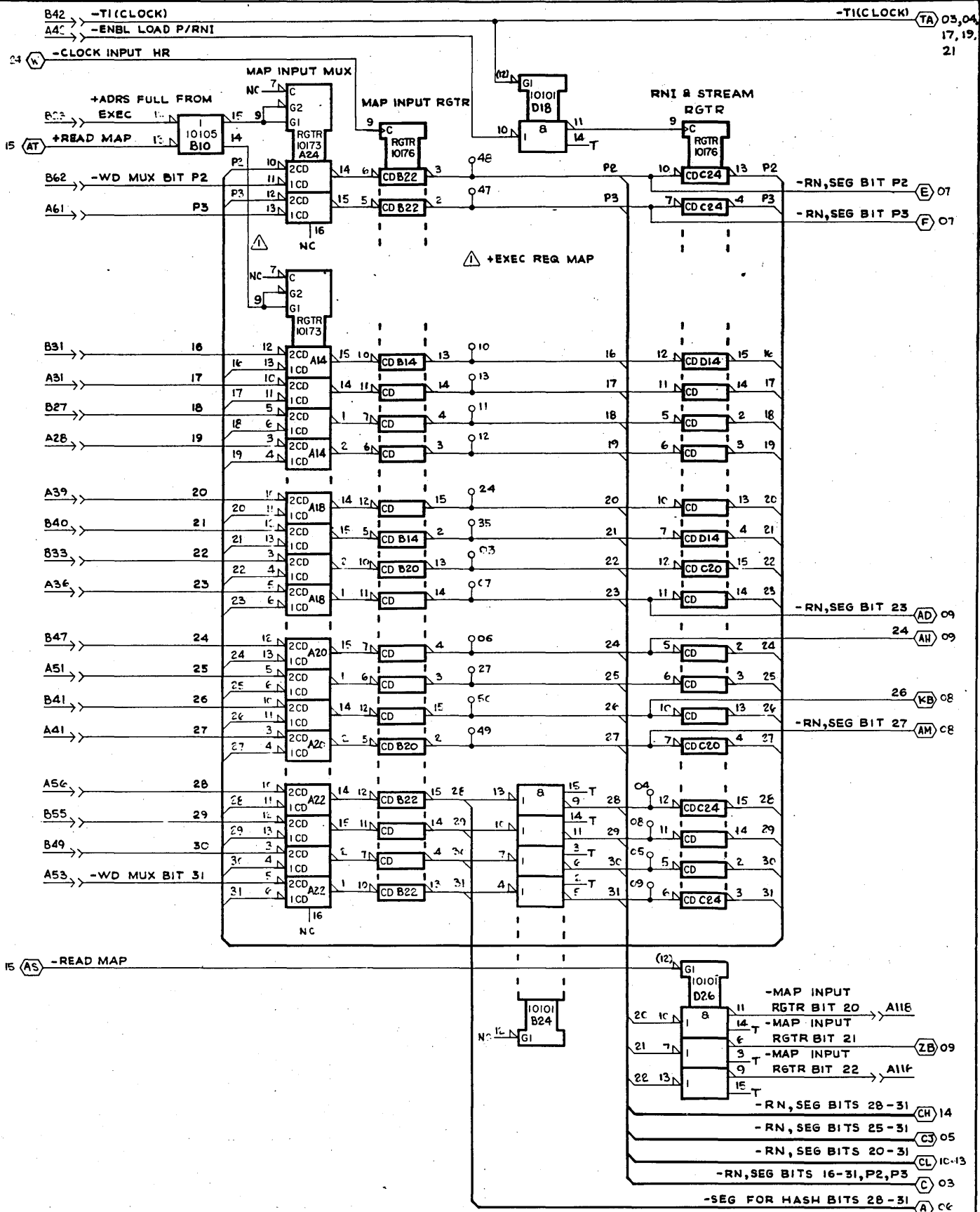
C

B

B

A

A



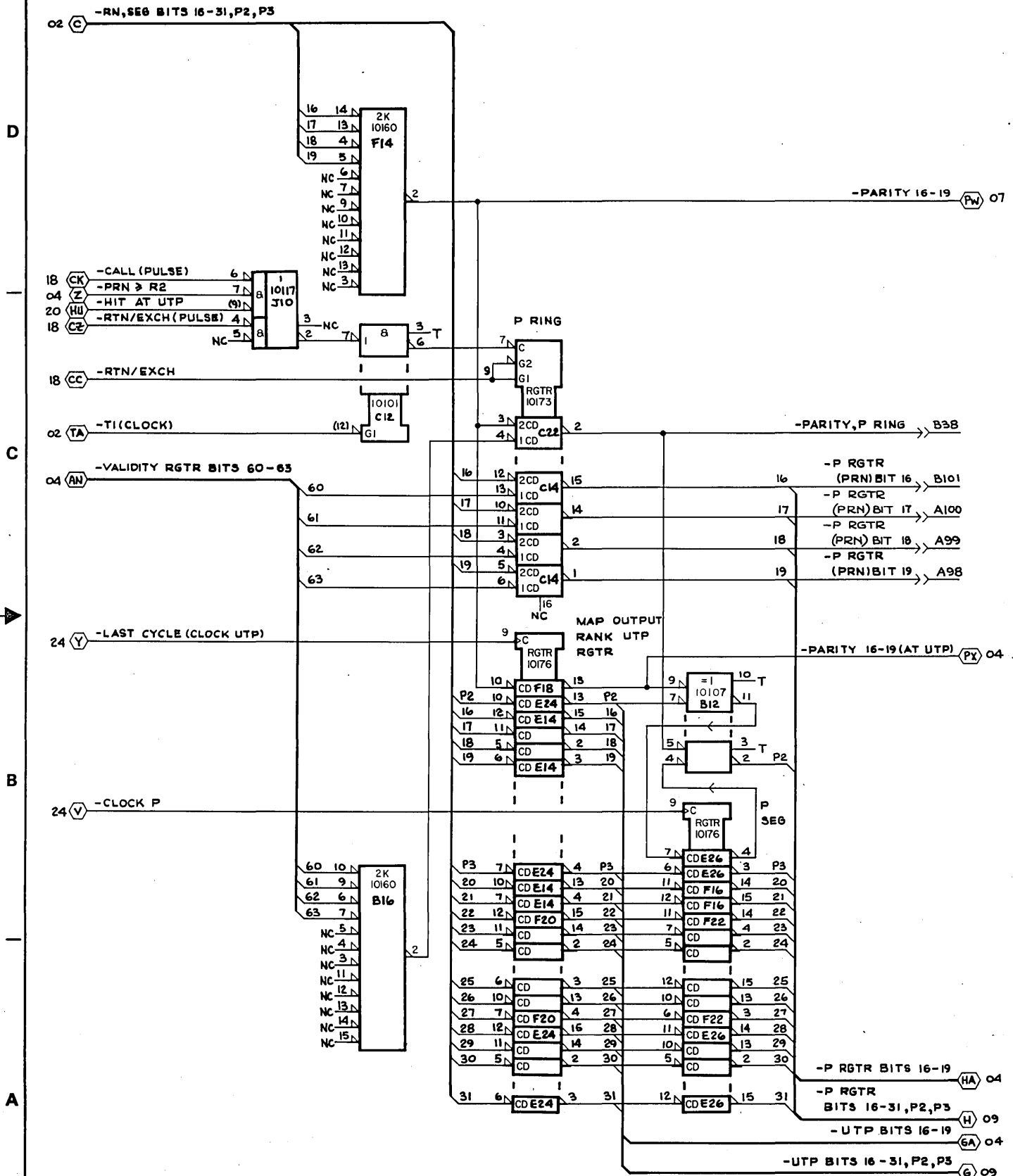


4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CONTROL DATA

UTP RGTR, P RGTR RINGS  
AND SEGMENT  
MODULE ASSY - 210 PAK  
TYPE BUXO

CODE IDENT.  
34570

DWG NO.  
C

REV  
D

SHEET  
03

4

3

2

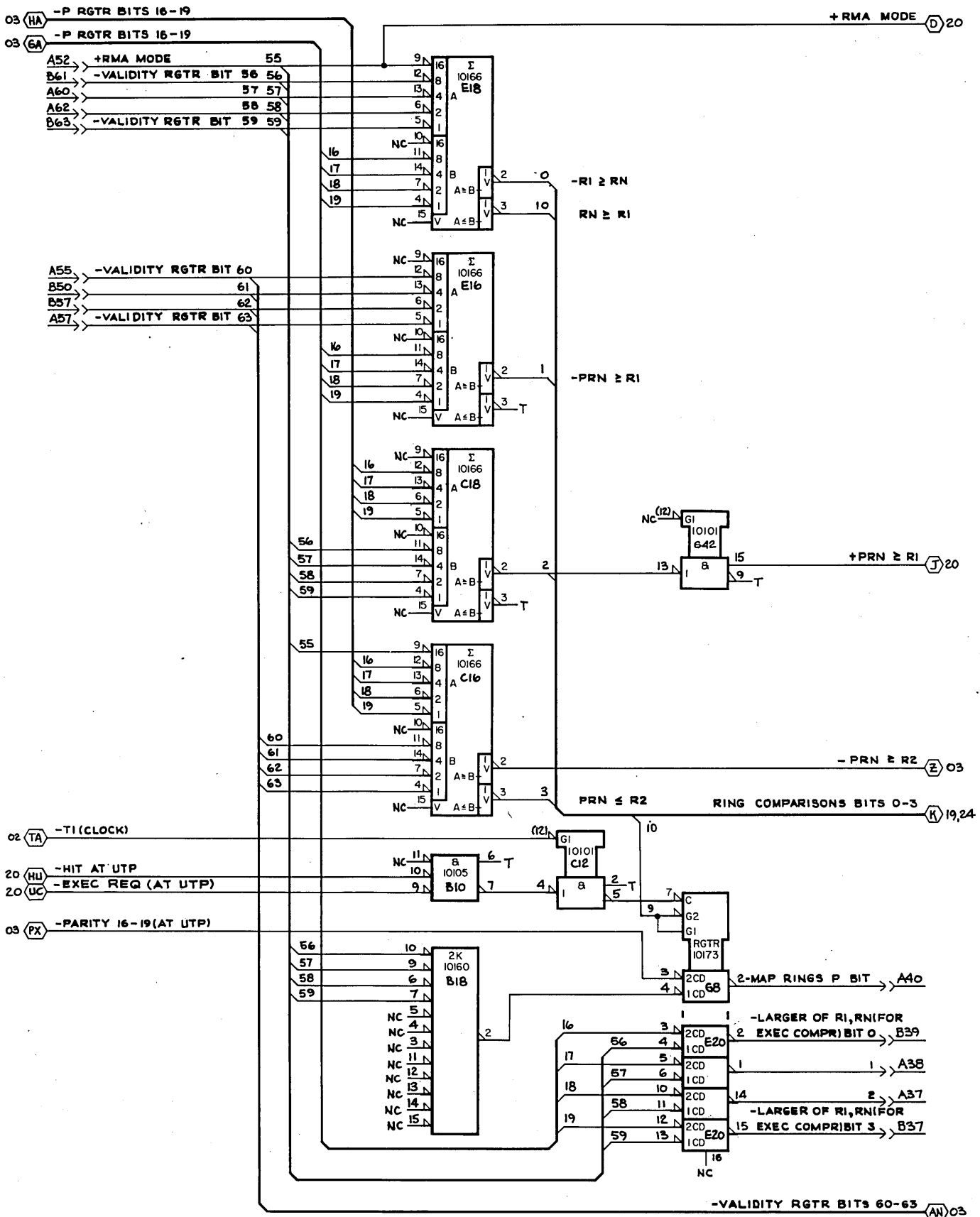
1

4

3

2

1



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CONTROL DATA

RING COMPARATORS  
MODULE ASSY - 210PAK  
TYPE 8UX0

CODE IDENT.  
34570

DWG. NO.  
C

REV  
D

SHEET  
04

4

3

2

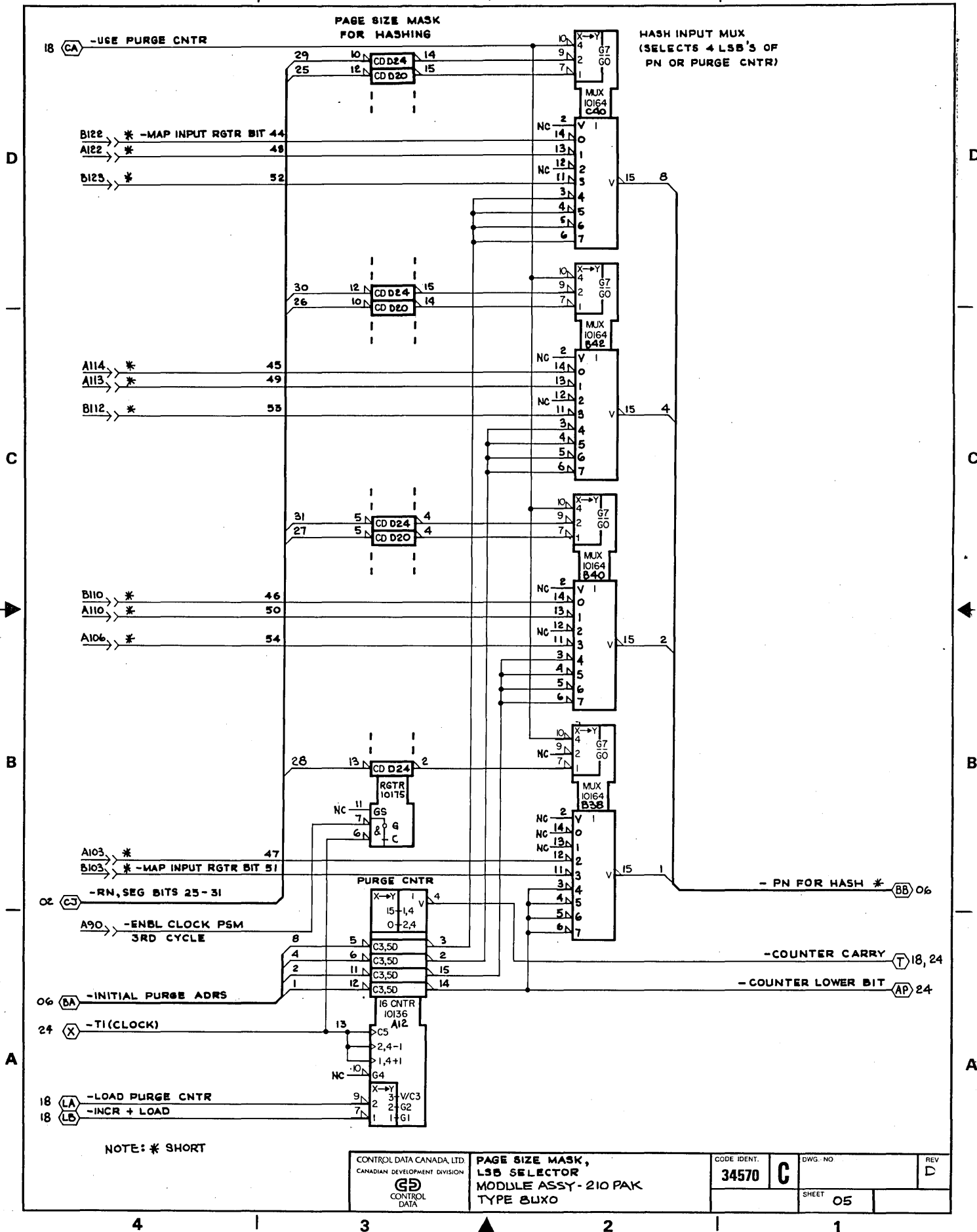
1

4

3

2

1

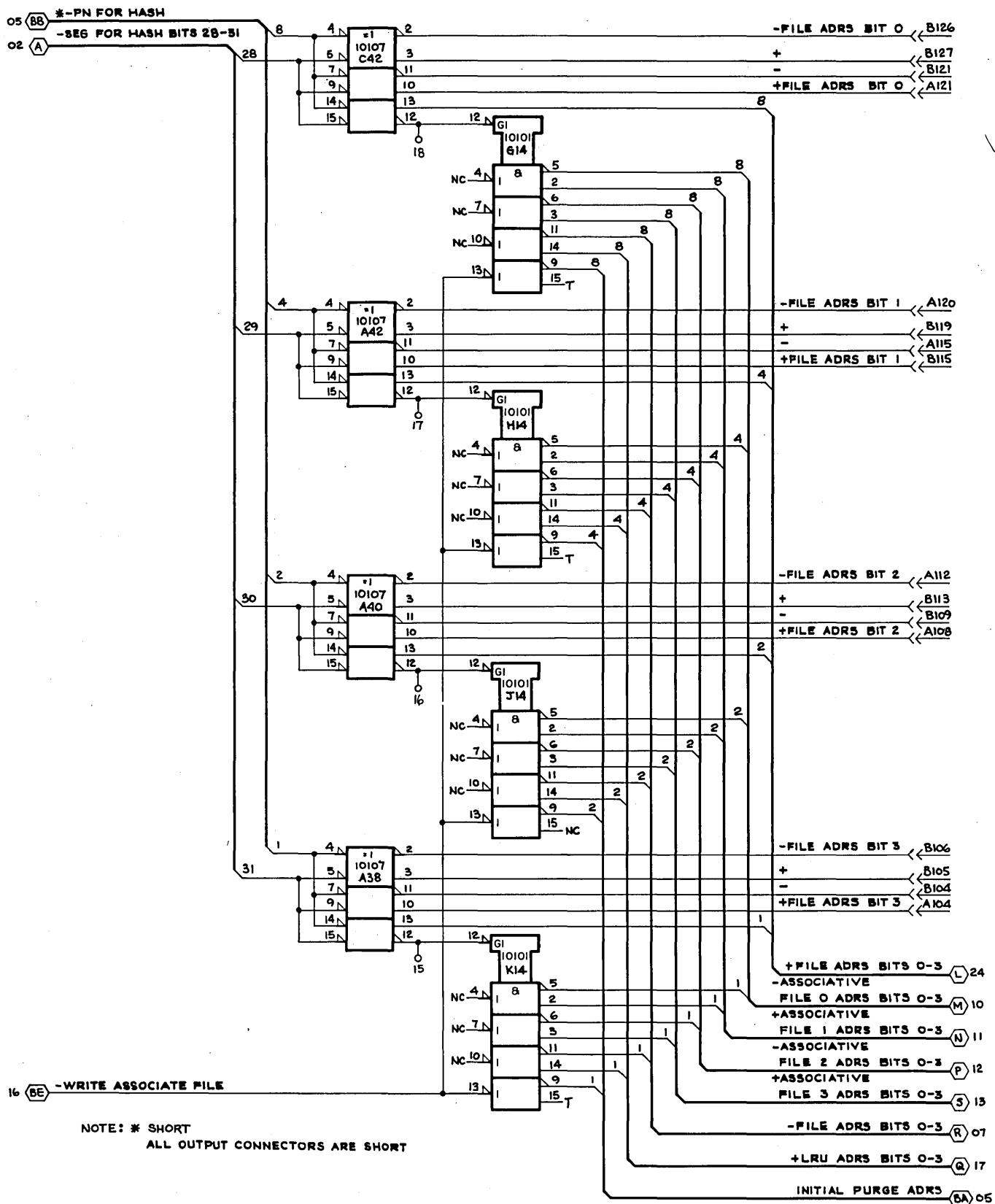


4

3

2

1



NOTE THIS DWG IS APPLICABLE  
TO PWB P/N 19267945

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

FILE ADRS HASHING  
MODULE ASSY -210 PAK  
TYPE 8UX0

CODE IDENT.

34570

DWG NO

C

REV

C

SHEET

06

4

3

2

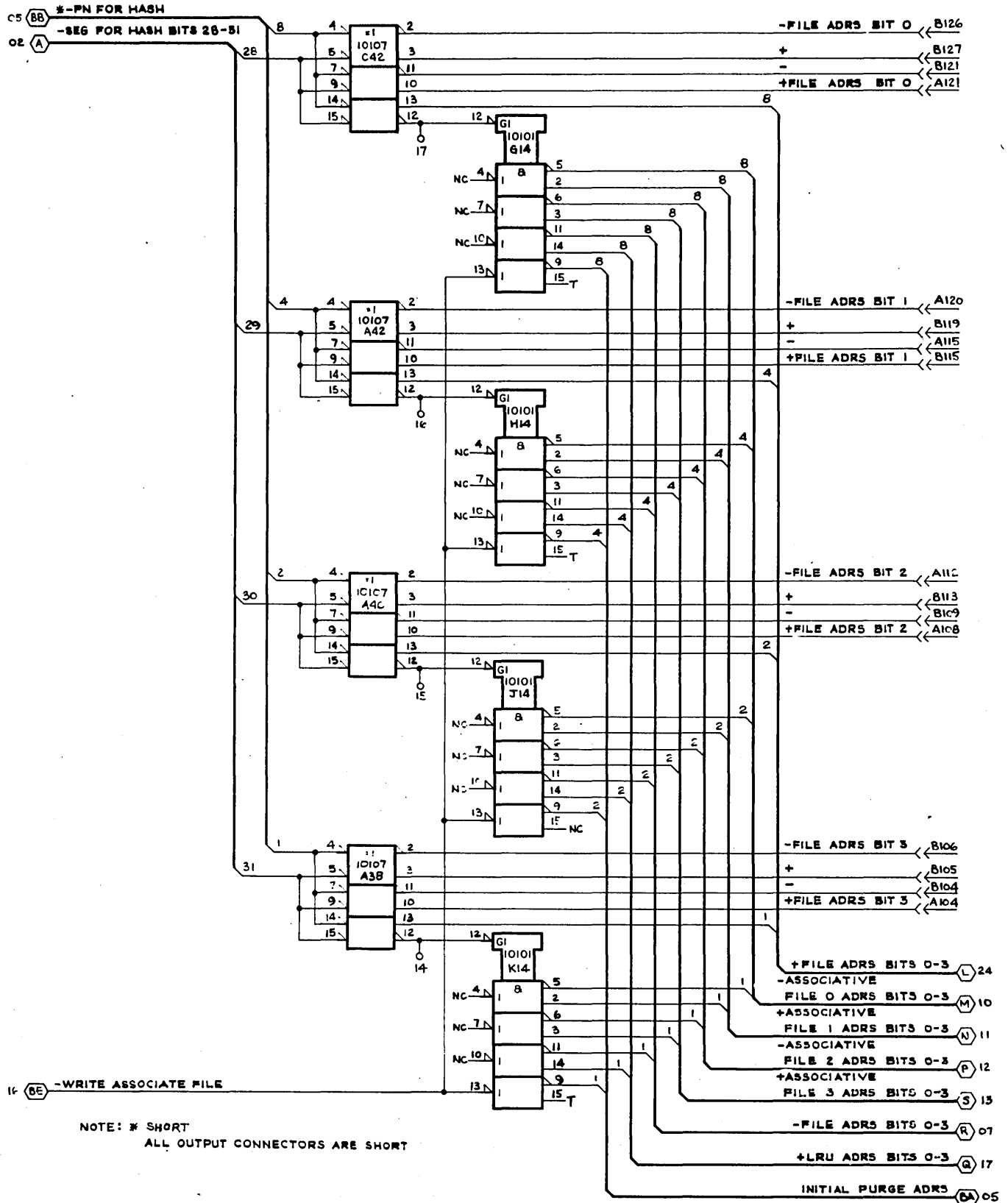
1

4

3

2

1



NOTE: THIS DWG IS APPLICABLE  
 TO BOTH PWB P/N 19266632  
 AND P/N 19267275

GPD  
 19266632

FILE ADRS HASHING  
 MODULE ASSY - 210 PAK  
 TYPE 8UX0

CODE IDENT  
 34570

DWG NO  
 C

SHEET 06A

REV  
 D

4

3

2

1

4

3

2

1

D

D

C

C

B

B

A

A

06 (R) -FILE ADRS BITS 0-3

16 (BH) -CLOCK FILE 0  
A123

10 (BM) -MONITOR MODE

16 (BE) -WR ASSOCIATE FILE 5

10 (BN) -JOB MODE

16 (BJ) -CLOCK FILE 1  
A47

02 (F) -RN, SEQ BIT P3

02 (E) -RN, SEQ BIT P2

03 (PW) PARITY 16-19

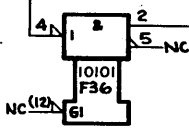
10 (LZ) -LOGIC '0'

16 (BK) -CLOCK FILE 2  
A49

16 (BL) -CLOCK FILE 3  
A50

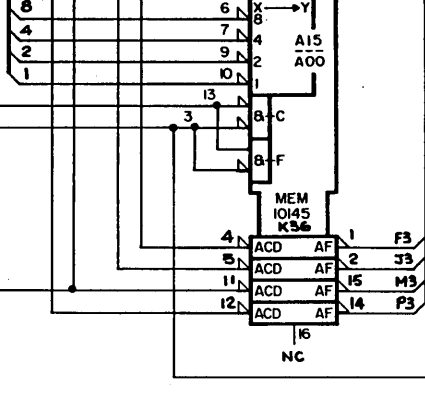
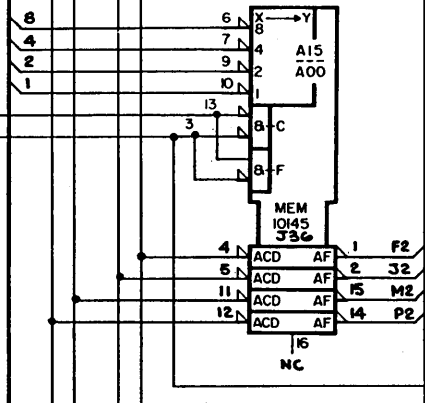
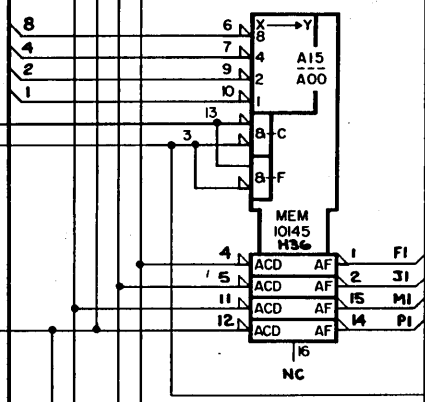
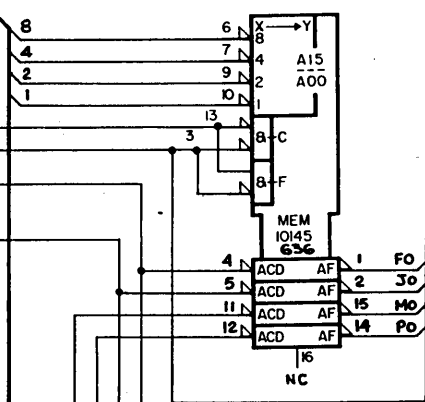
A105 -WRITE MISS 10

21 (BP)



FULLS FILE

- FULLS BITS F0-F3, J0-J3, M0-M3, P0-P3
- FULLS BITS J0-J3, M0-M3
- FULLS BITS F0-P0
- FULLS BITS F1-P1
- FULLS BITS F2-P2
- FULLS BITS F3-P3



CONTROL DATA CANADA, LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

FULLS FILE  
MODULE ASSY-210 PAK  
TYPE 81X0

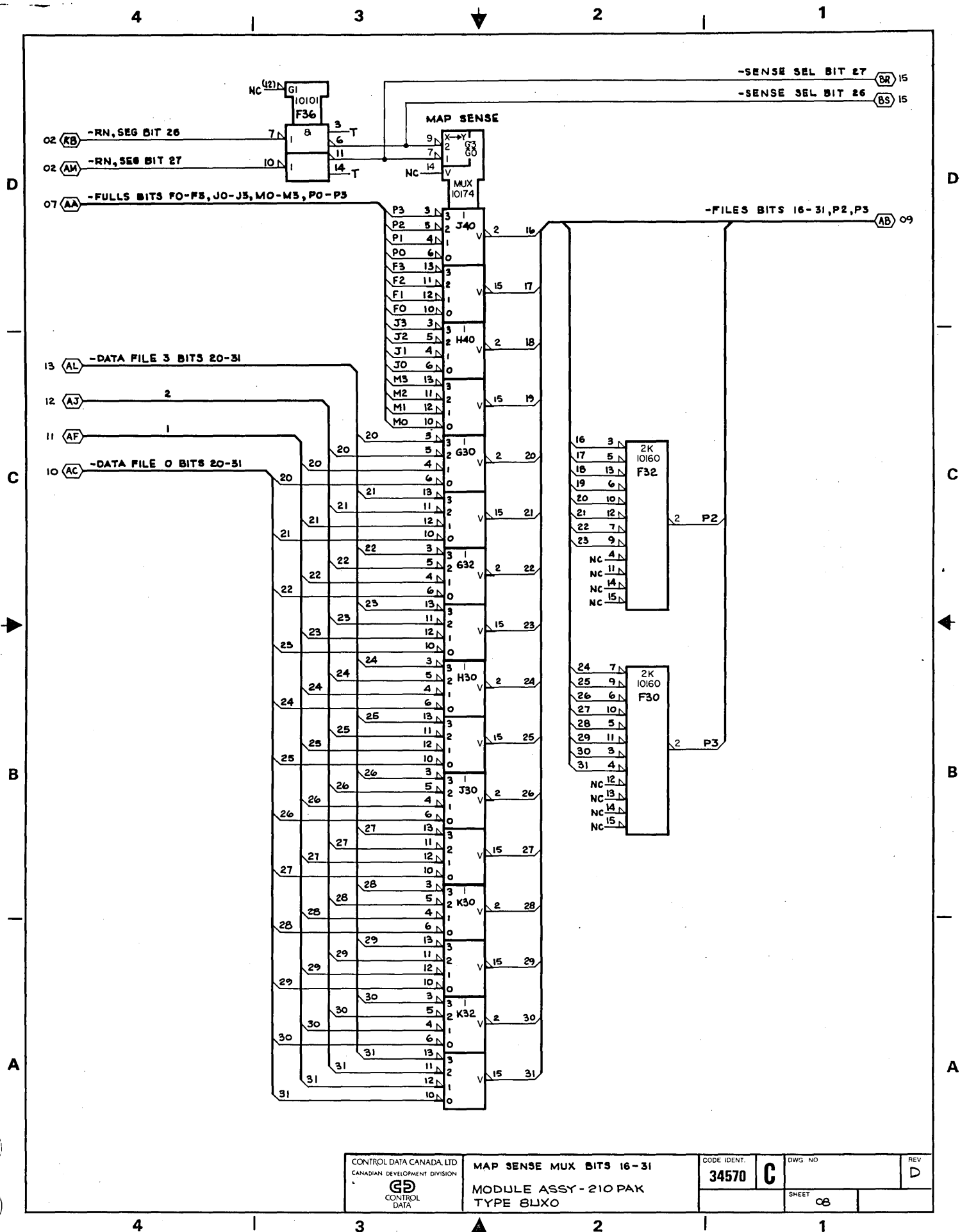
CODE IDENT.  
34570

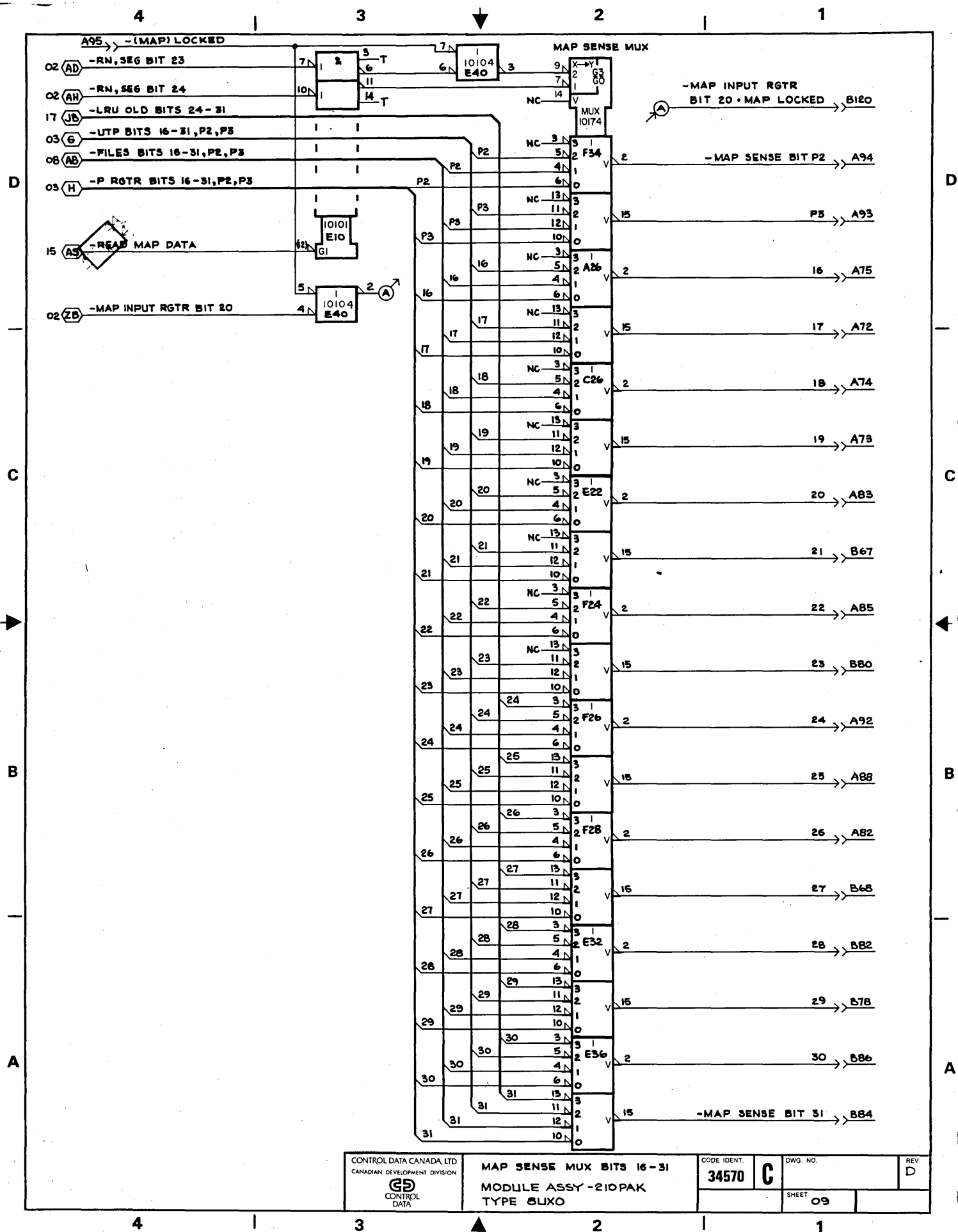
C

DWG. NO.

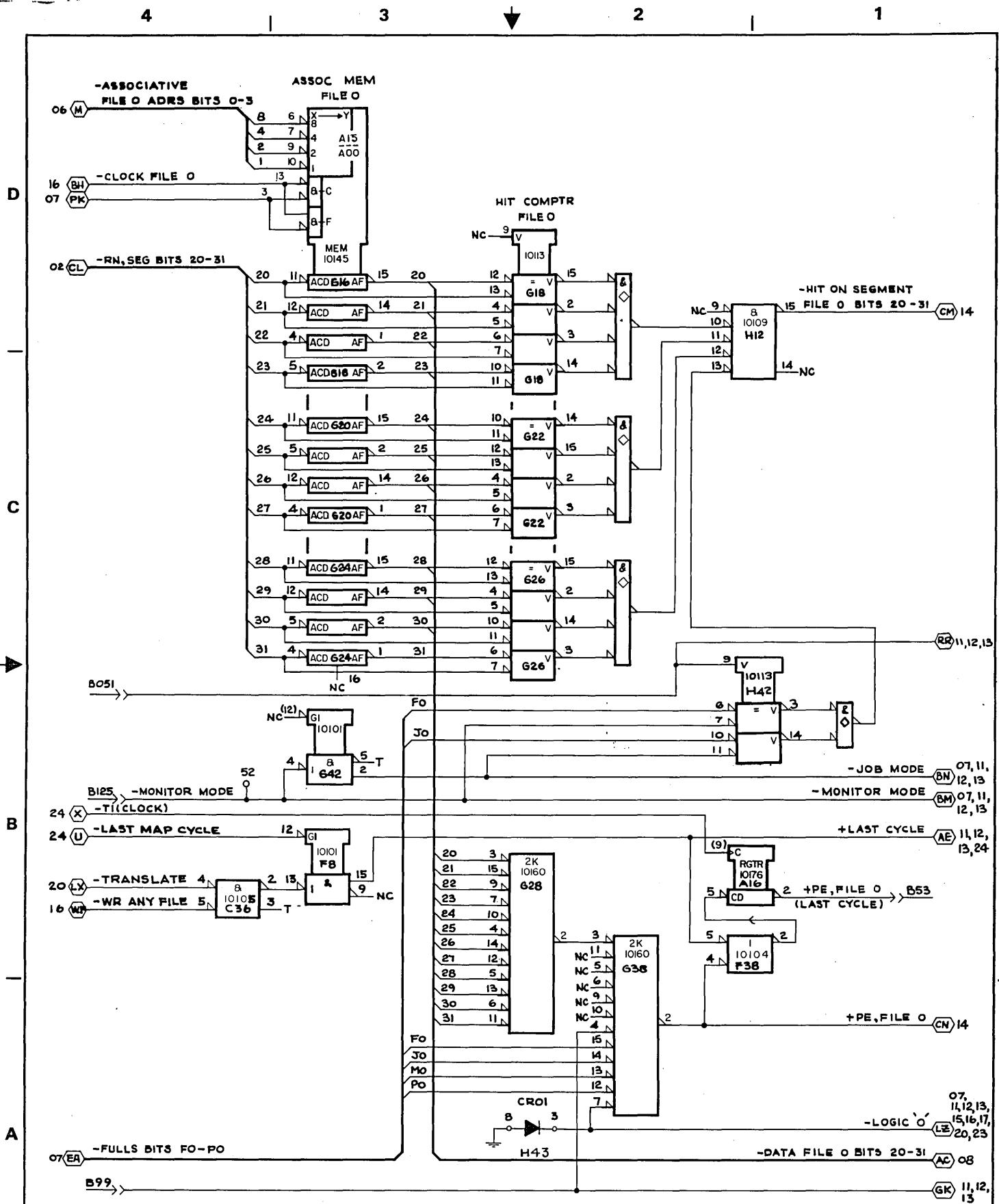
REV  
D

SHEET  
07









NOTE THIS DWG IS APPLICABLE  
TO PWB P/N 19267945

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



HIT COMPT & P CHKR FILE 0

MODULE ASSY - 210PAK  
TYPE 8UX0

CODE IDENT.

DWG. NO.

REV

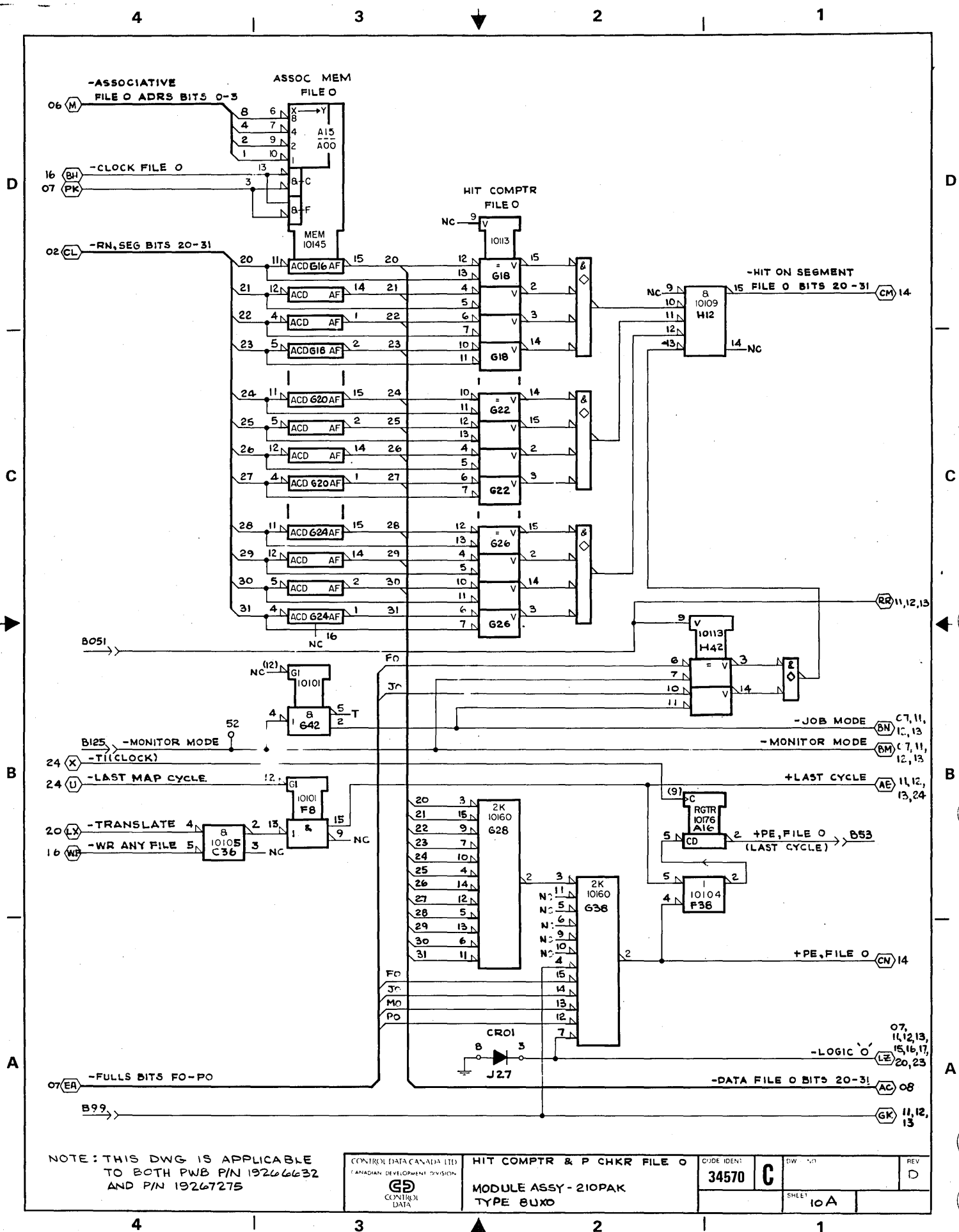
34570

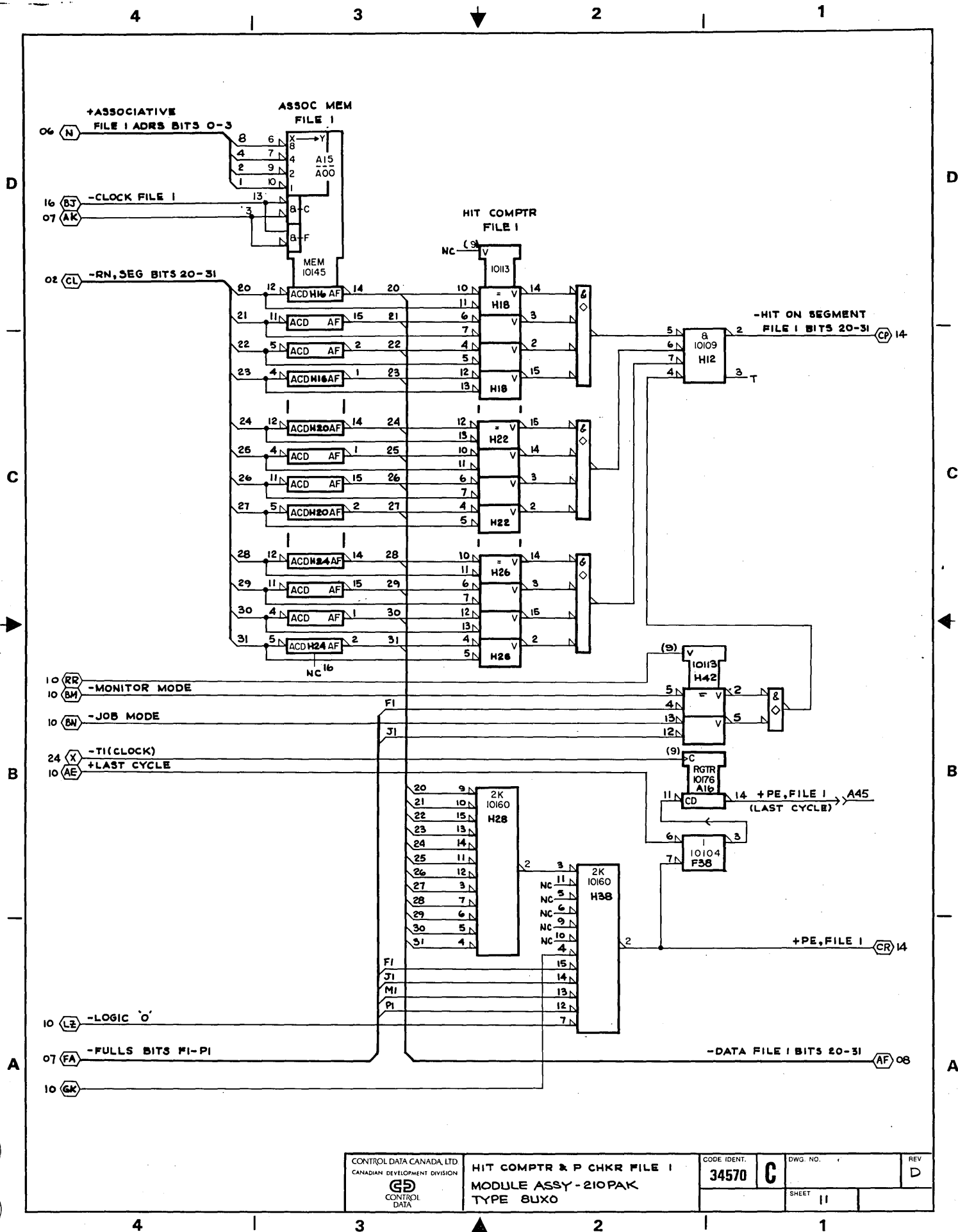
C

C

SHEET

10





4

3

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1

D

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C

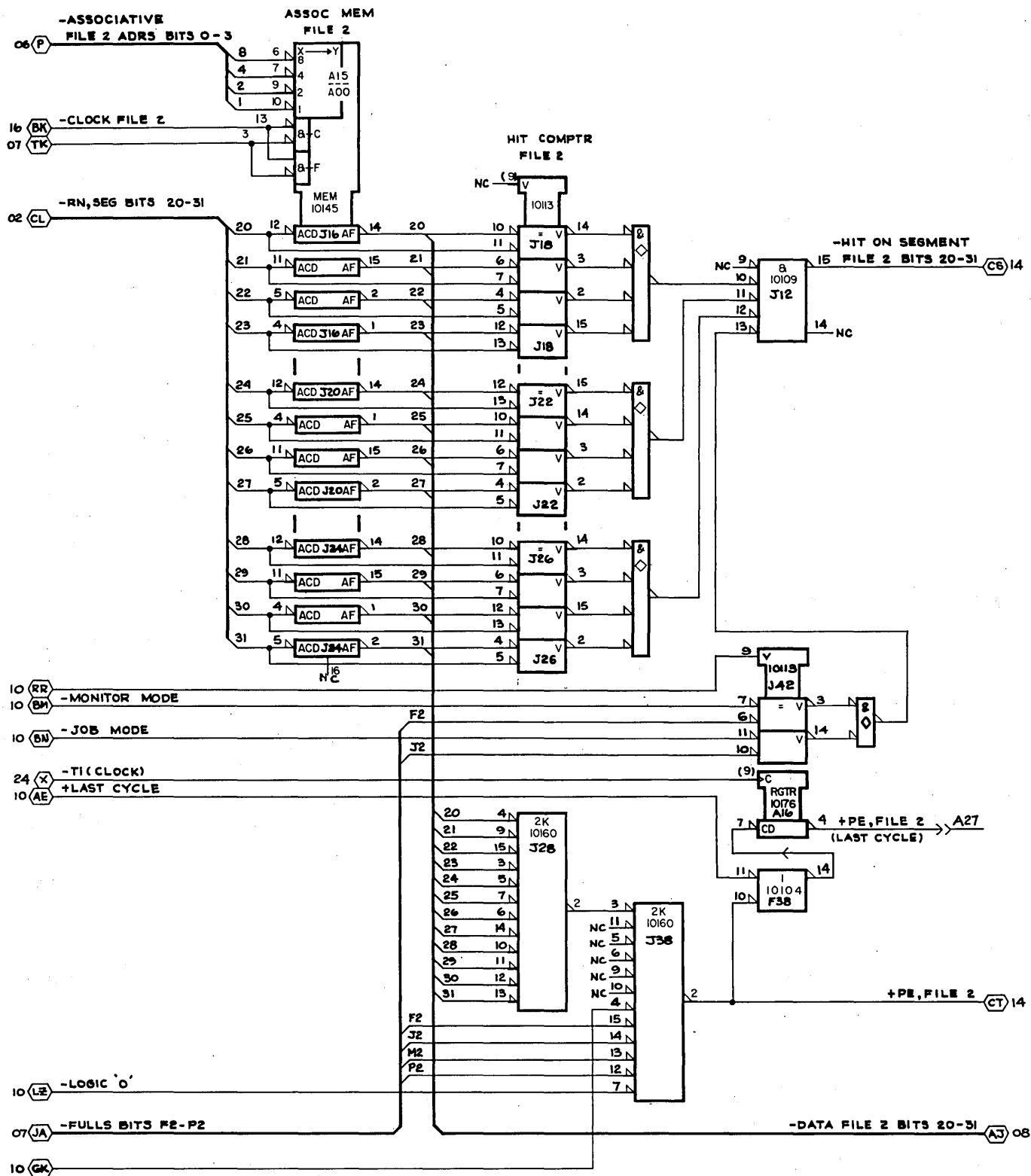
C

B

B

A

A



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

HIT COMPTR & P CHKR FILE 2  
MODULE ASSY - 210 PAK  
TYPE 8UXO

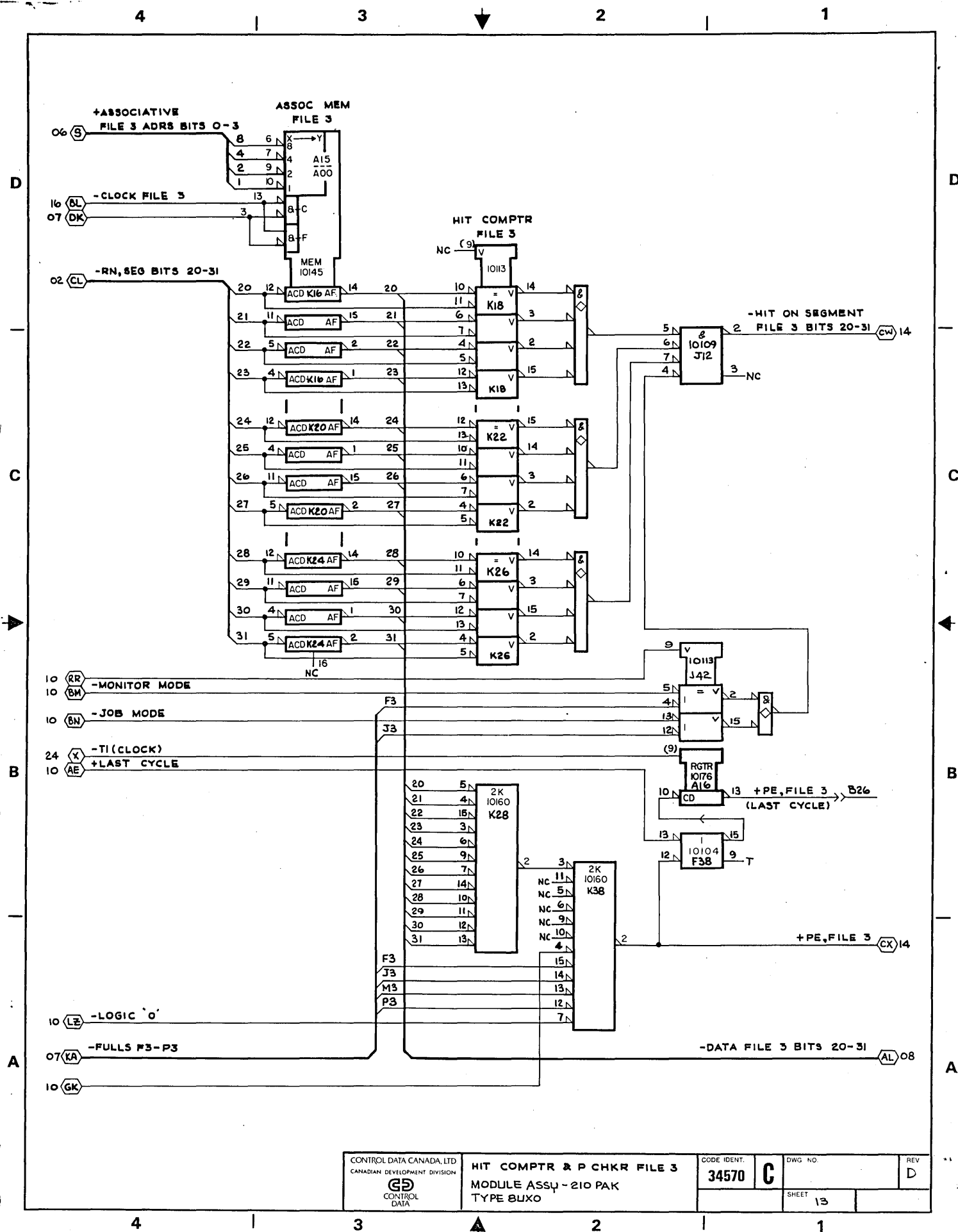
CODE IDENT.  
34570

C

DWG. NO.

REV  
D

SHEET  
12



4

3

2

1

D

D

C

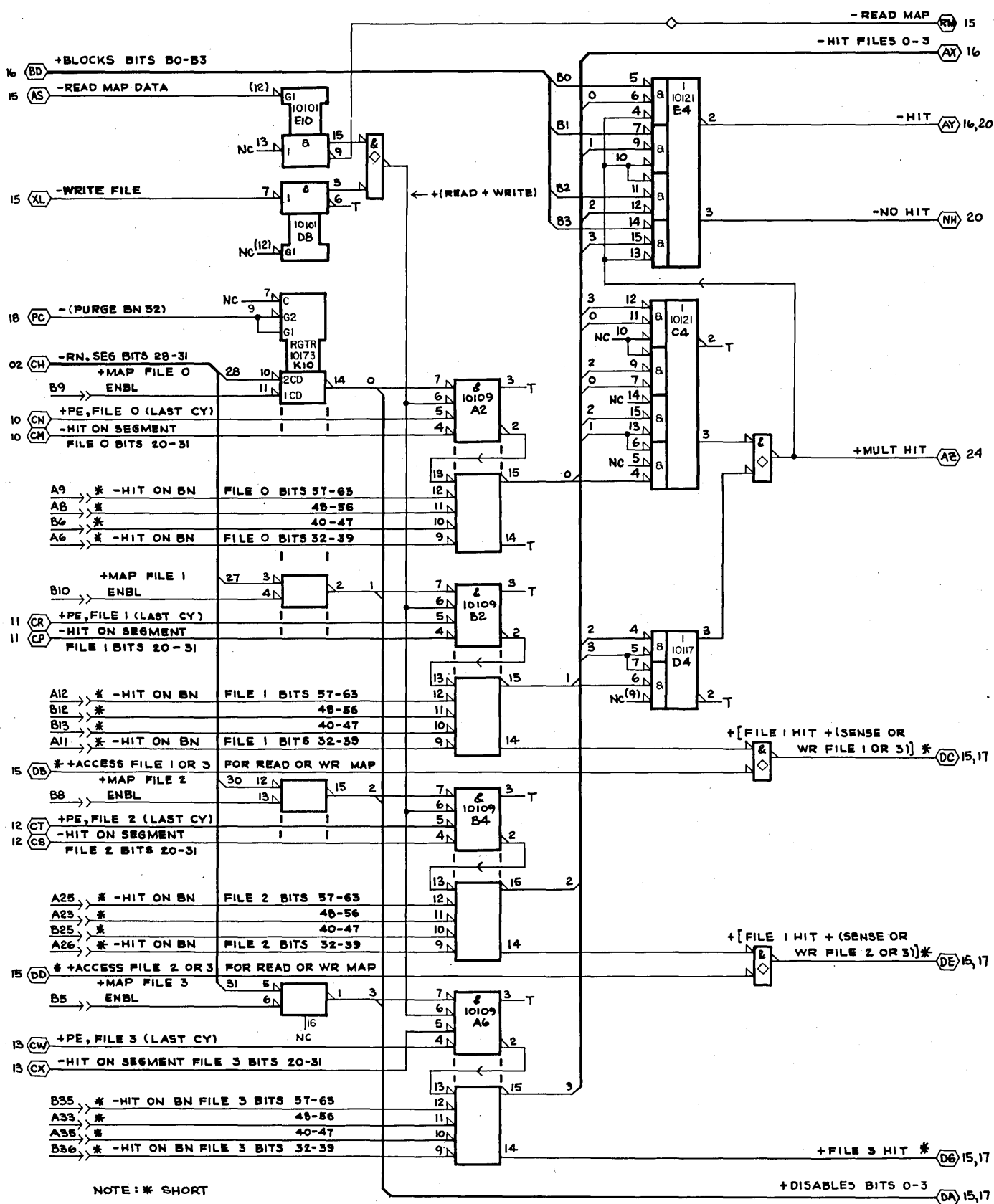
C

B

B

A

A



CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CONTROL DATA

HIT DETECTOR  
MODULE ASSY - 210 PAK  
TYPE 8UXO

CODE IDENT.

34570

DWG. NO.

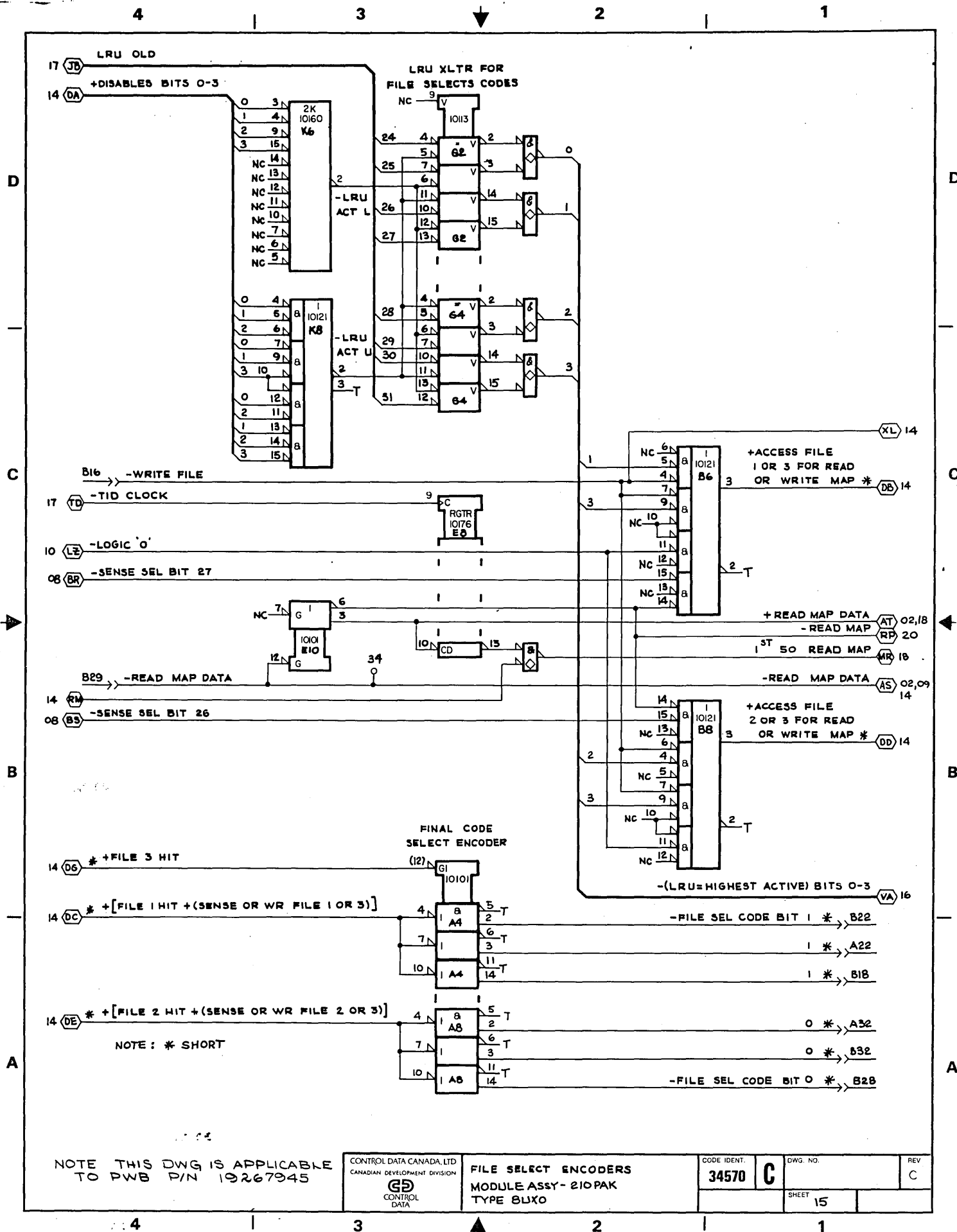
C

REV

D

SHEET

14

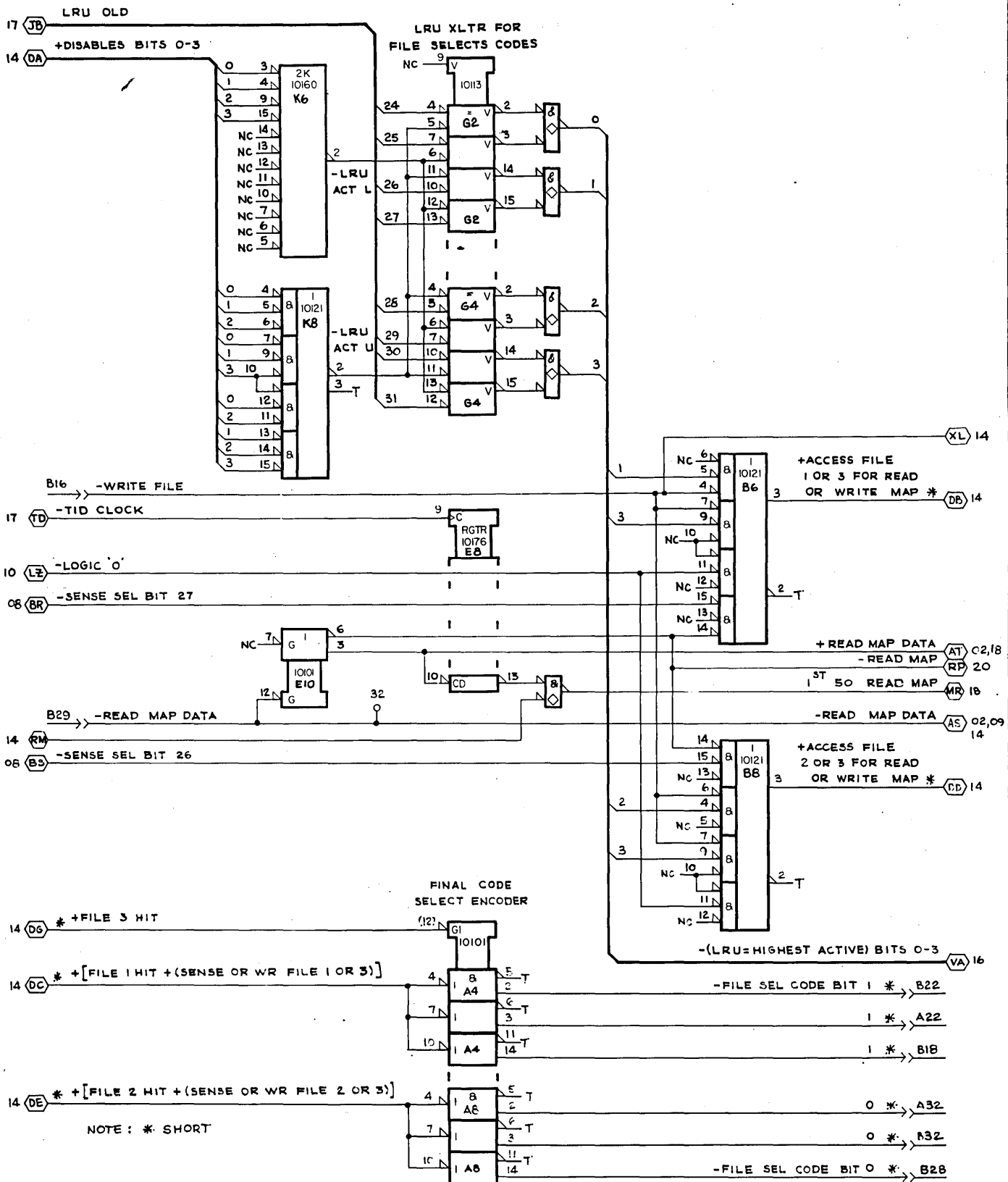


4

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1



NOTE THIS LWA IS APPLICABLE TO  
COSTA P/N 192664-32  
AND P/N 19267275

CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
GD  
CONTROL  
DATA

FILE SELECT ENCODERS  
MODULE ASSY - 210-PAK  
TYPE 6UXC

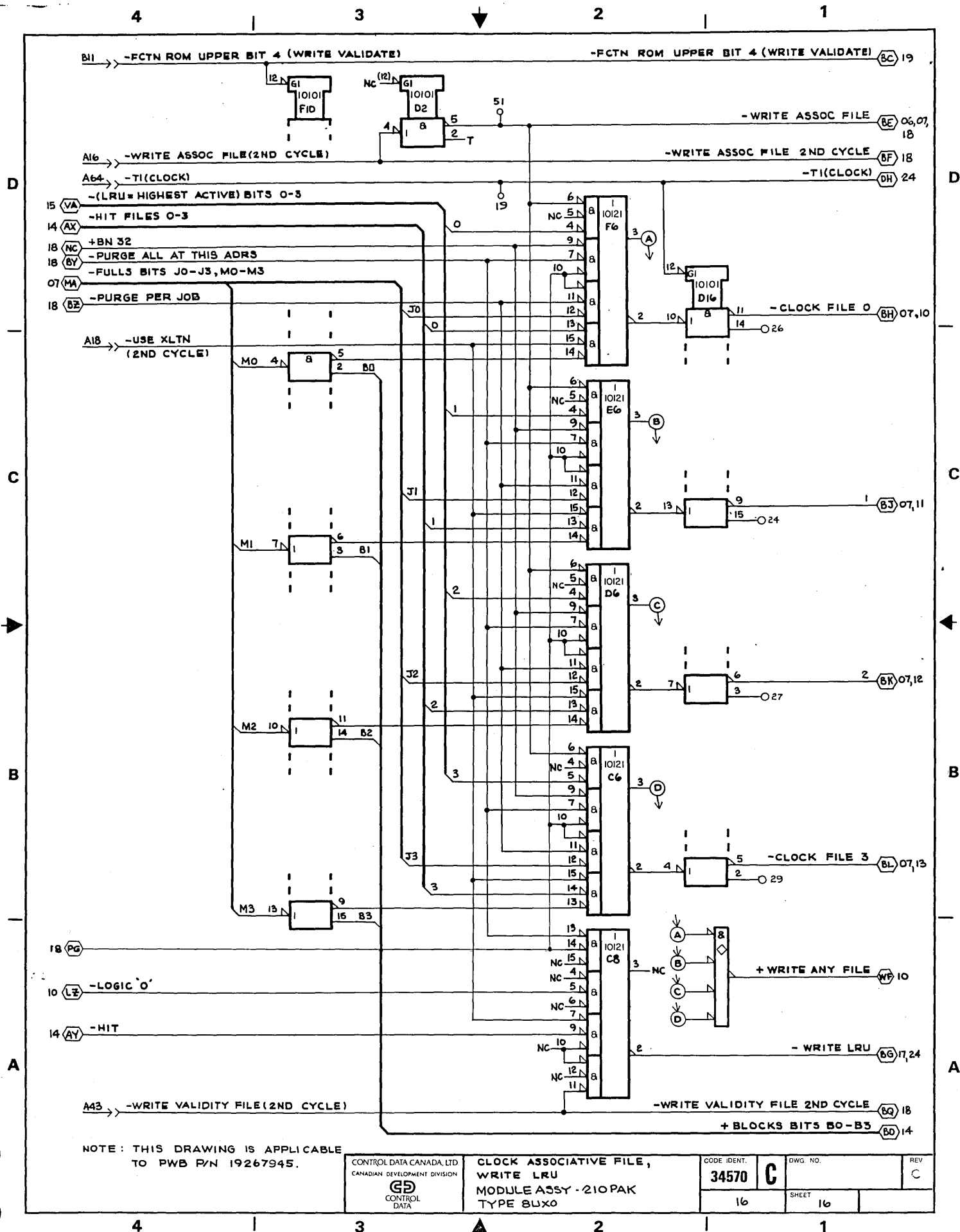
CODE IDENT  
34570

REV  
C

SHEET  
15A

REV  
C





CONTROL DATA CANADA, LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

CLOCK ASSOCIATIVE FILE,  
WRITE LRU  
MODULE ASSY - 210PAK  
TYPE 8UX0

CODE IDENT.	DWG. NO.	REV
34570	C	C
16	SHEET 16	

4

3

2

1

D

D

C

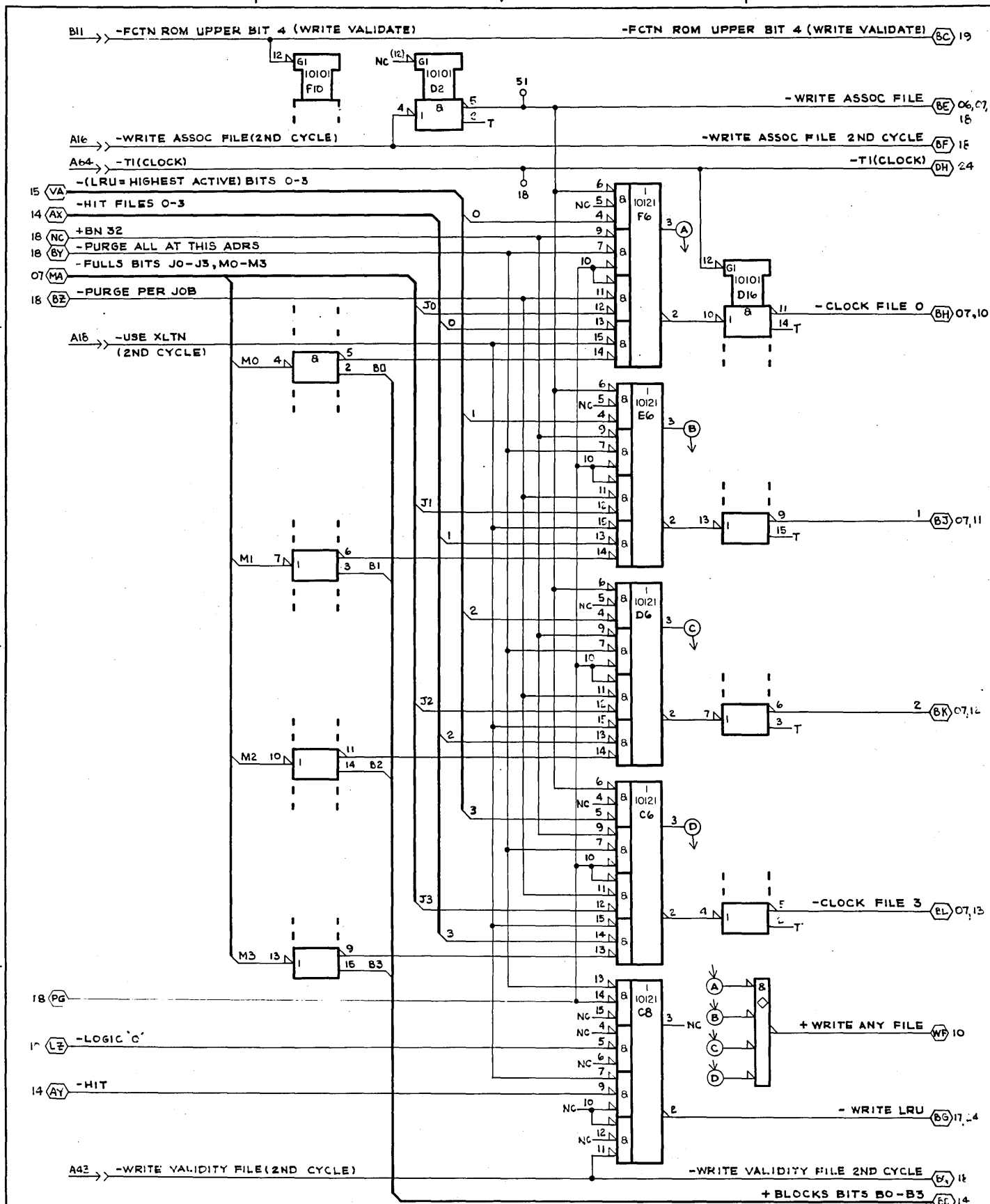
C

B

B

A

A



NOTE: THIS DRAWING IS APPLICABLE  
TO PWB P/N 19267275.

CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL DATA

CLOCK ASSOCIATIVE FILE,  
WRITE LRU  
MODULE ASSY - 210PAK  
TYPE 8UX0

CODE IDENT:  
34570

REV  
C

REV  
D

16

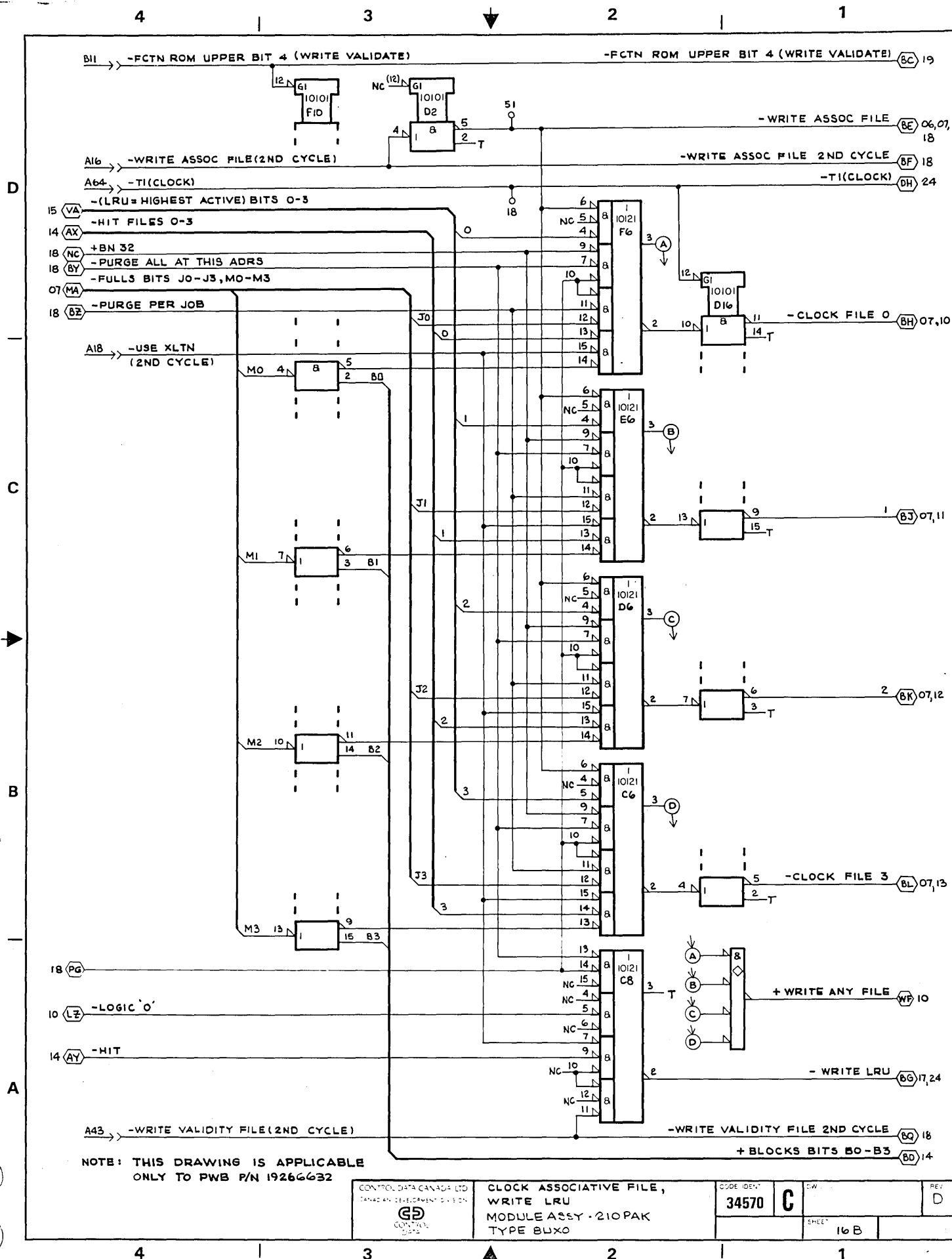
16A

4

3

2

1

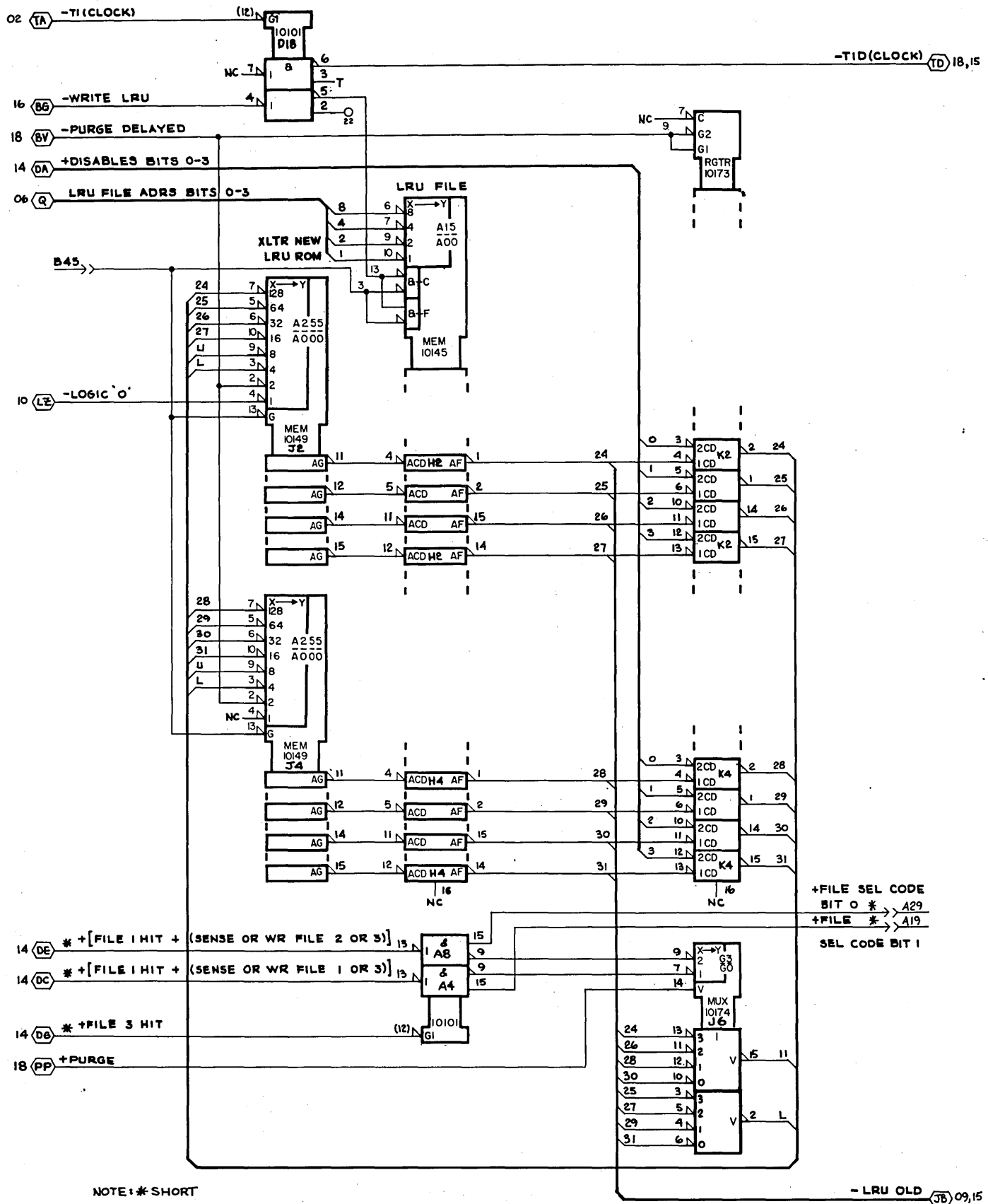


4

3

2

1



NOTE: \* SHORT

-LRU OLD JB 09,15

NOTE THIS DWG IS APPLICABLE  
TO PWB P/N 19267945

CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

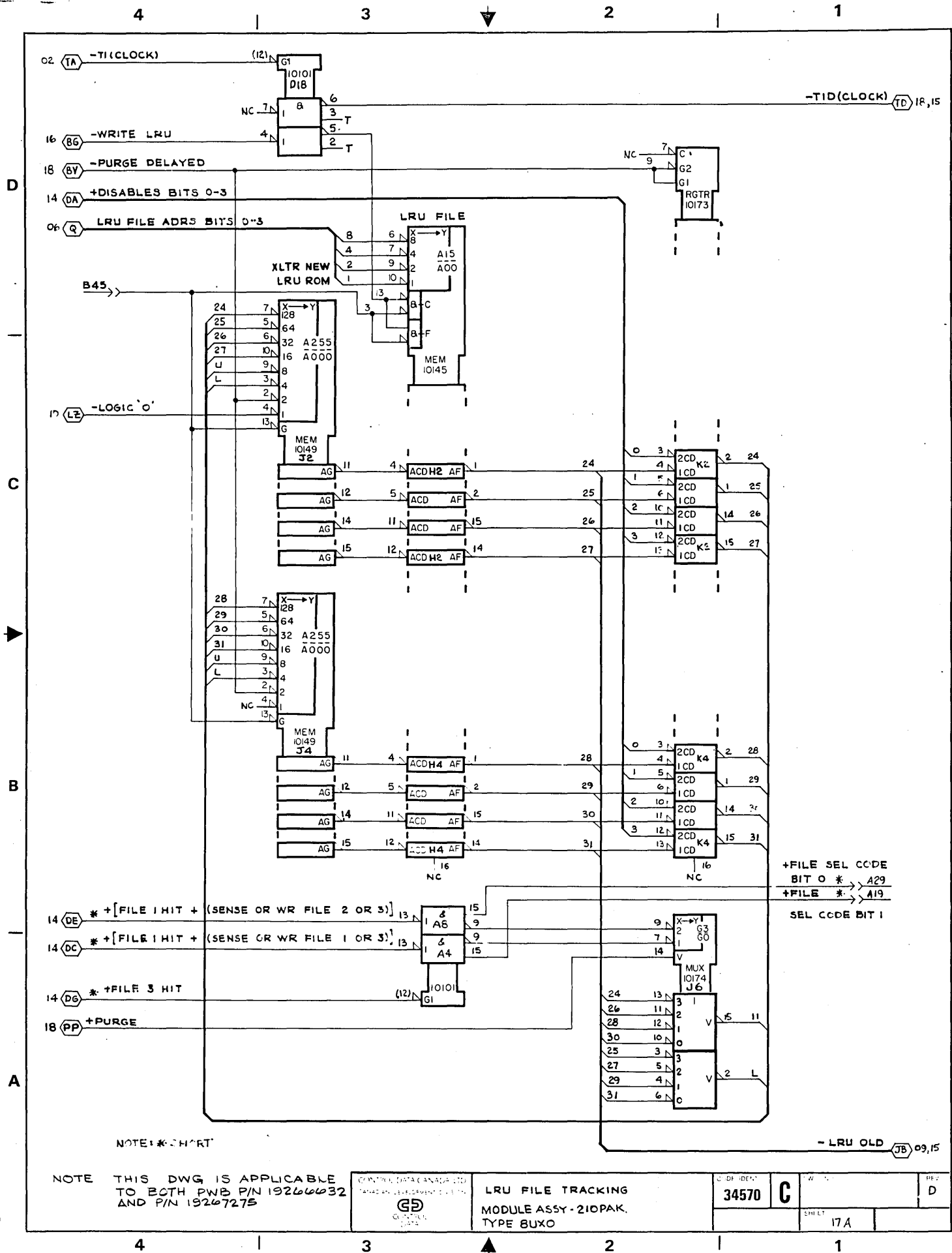
LRU FILE TRACKING  
MODULE ASSY-210PAK  
TYPE 8UXO

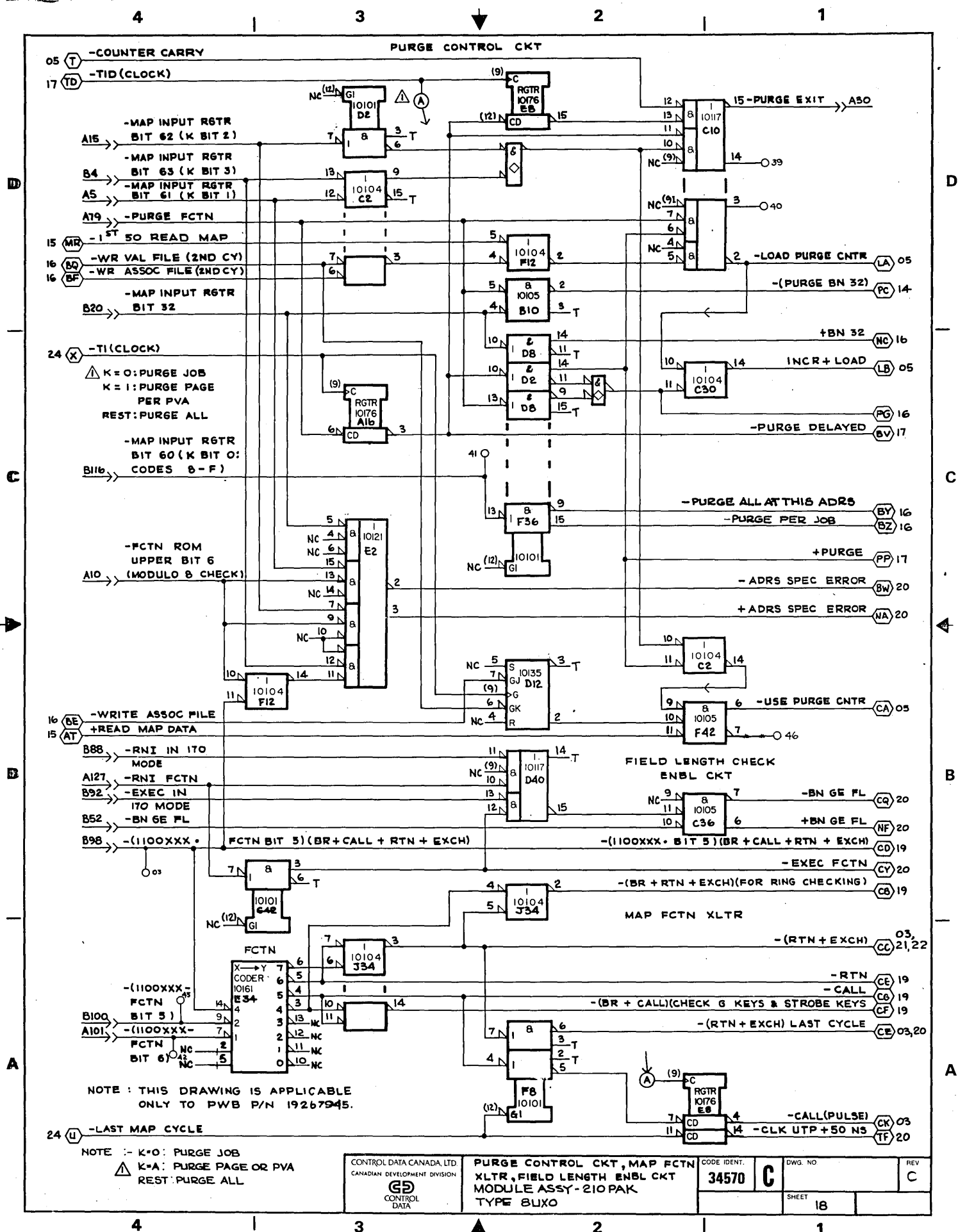
CODE IDENT.  
34570

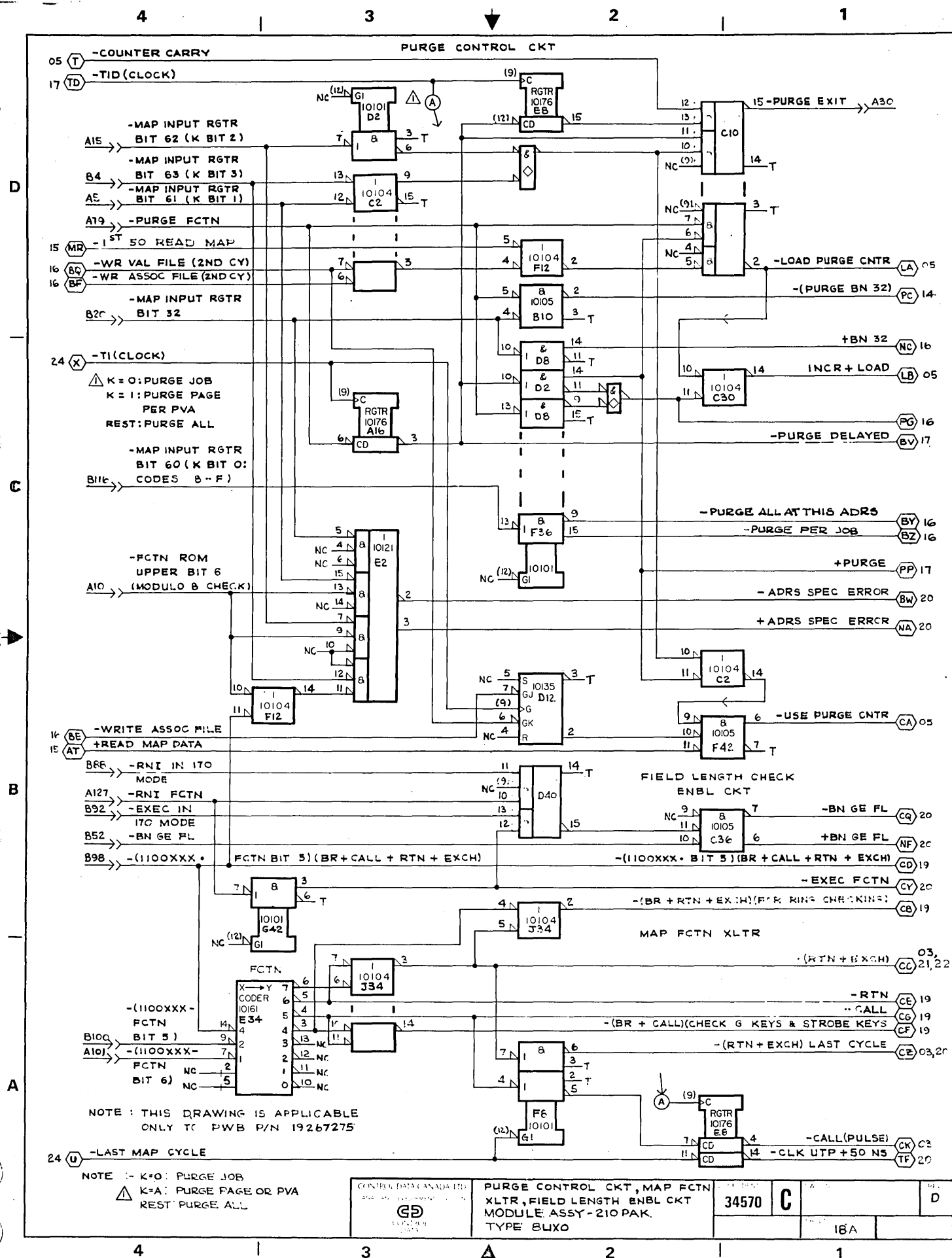
DWG. NO.  
C

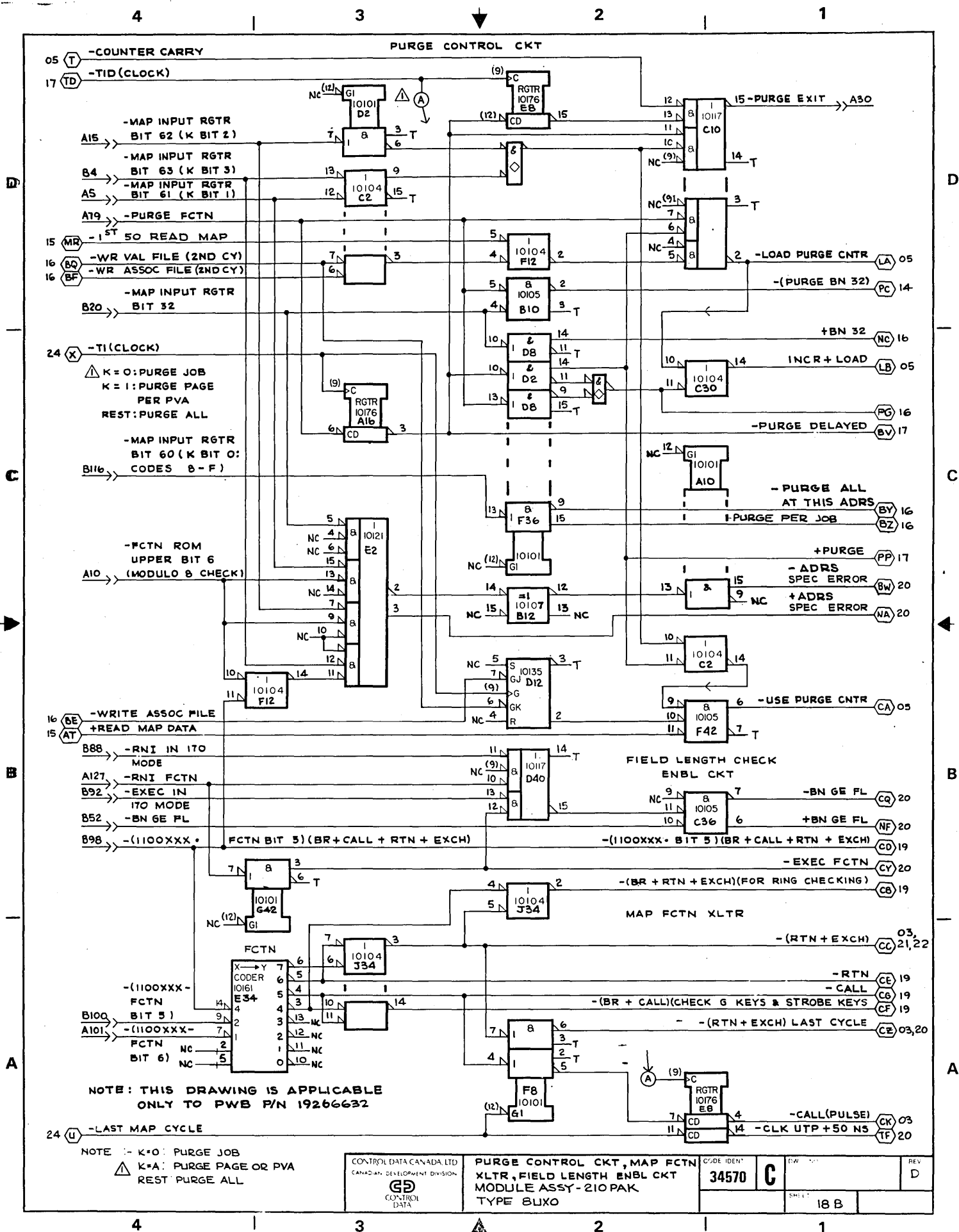
REV  
C

SHEET  
17









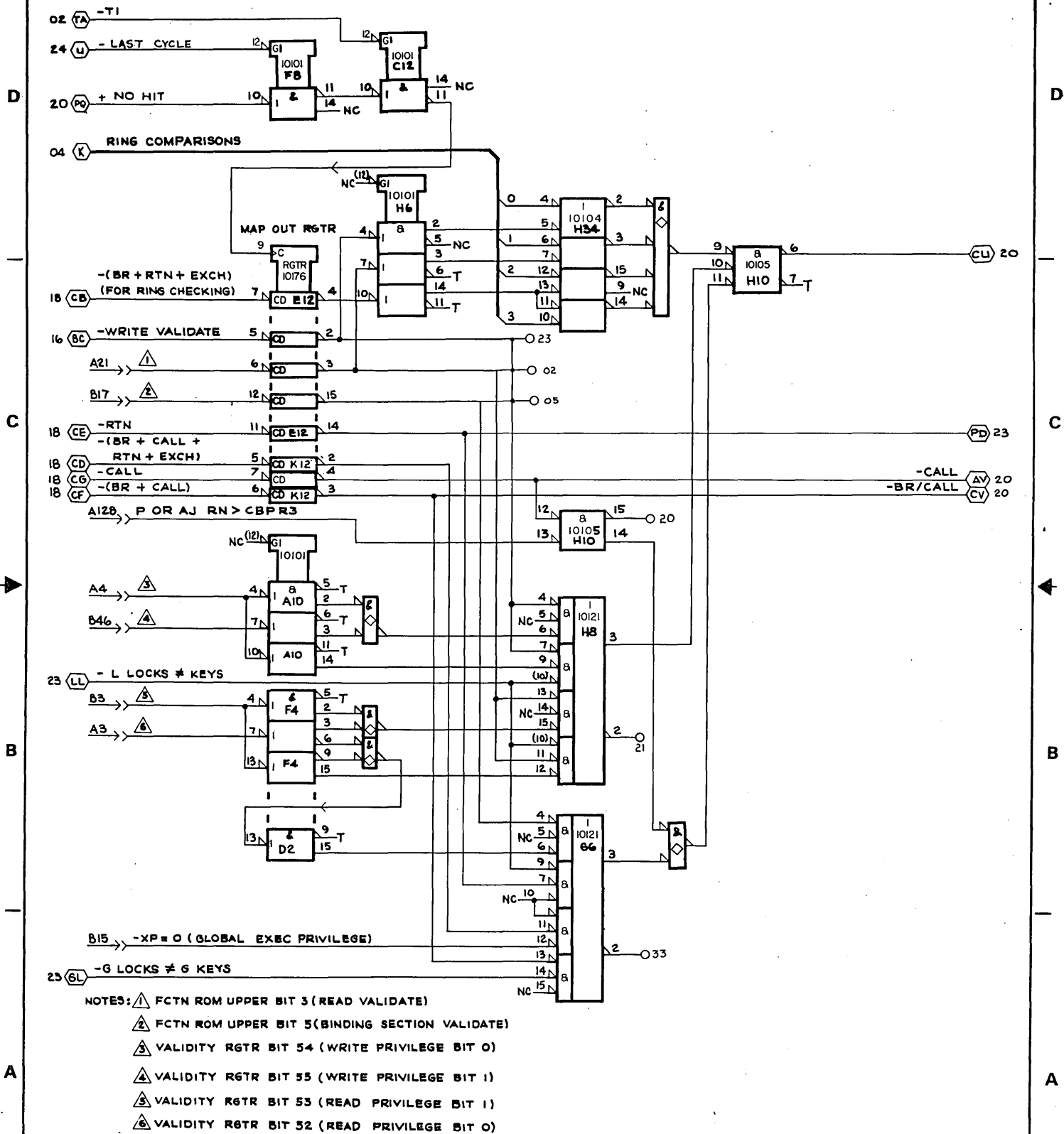


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1



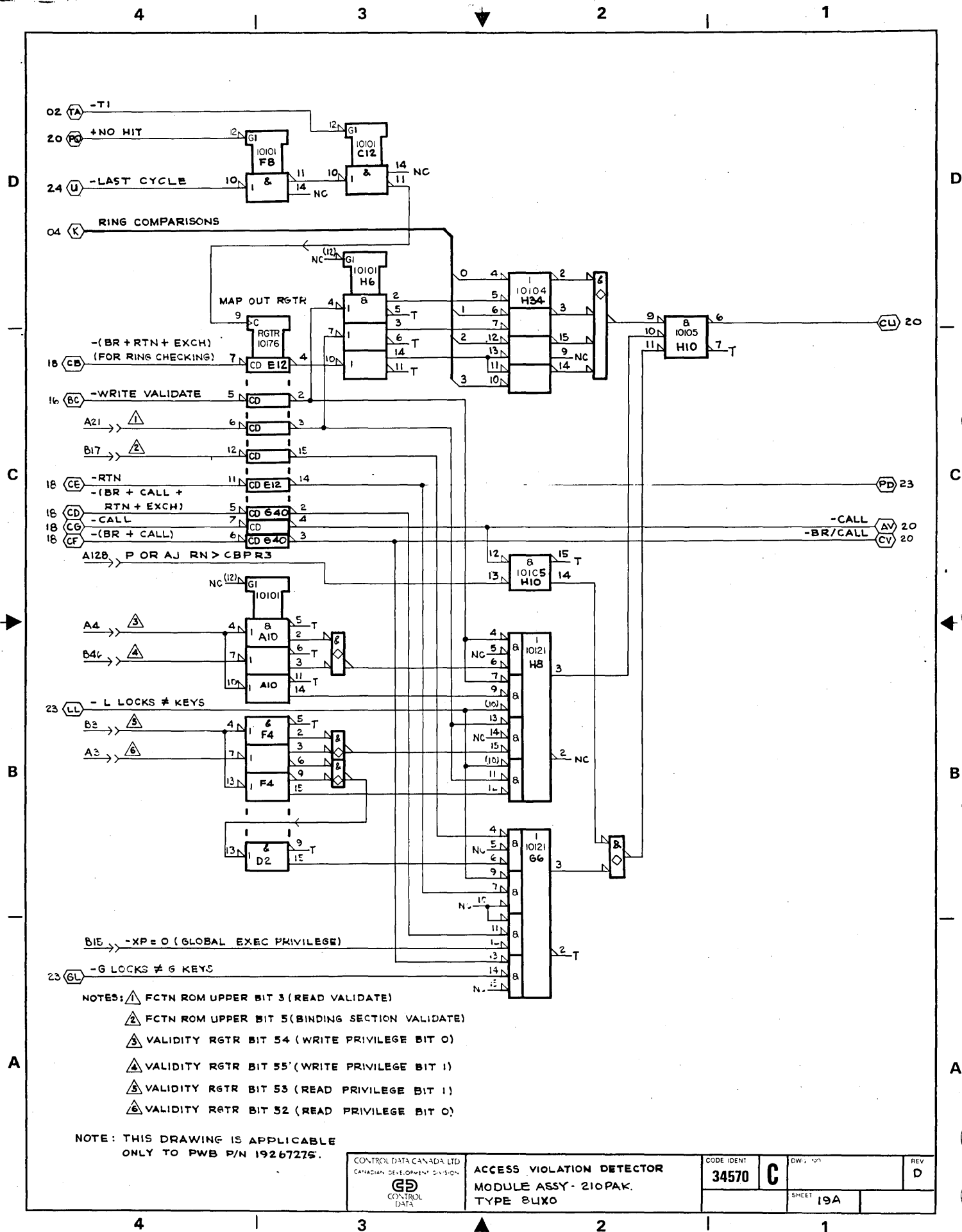
CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

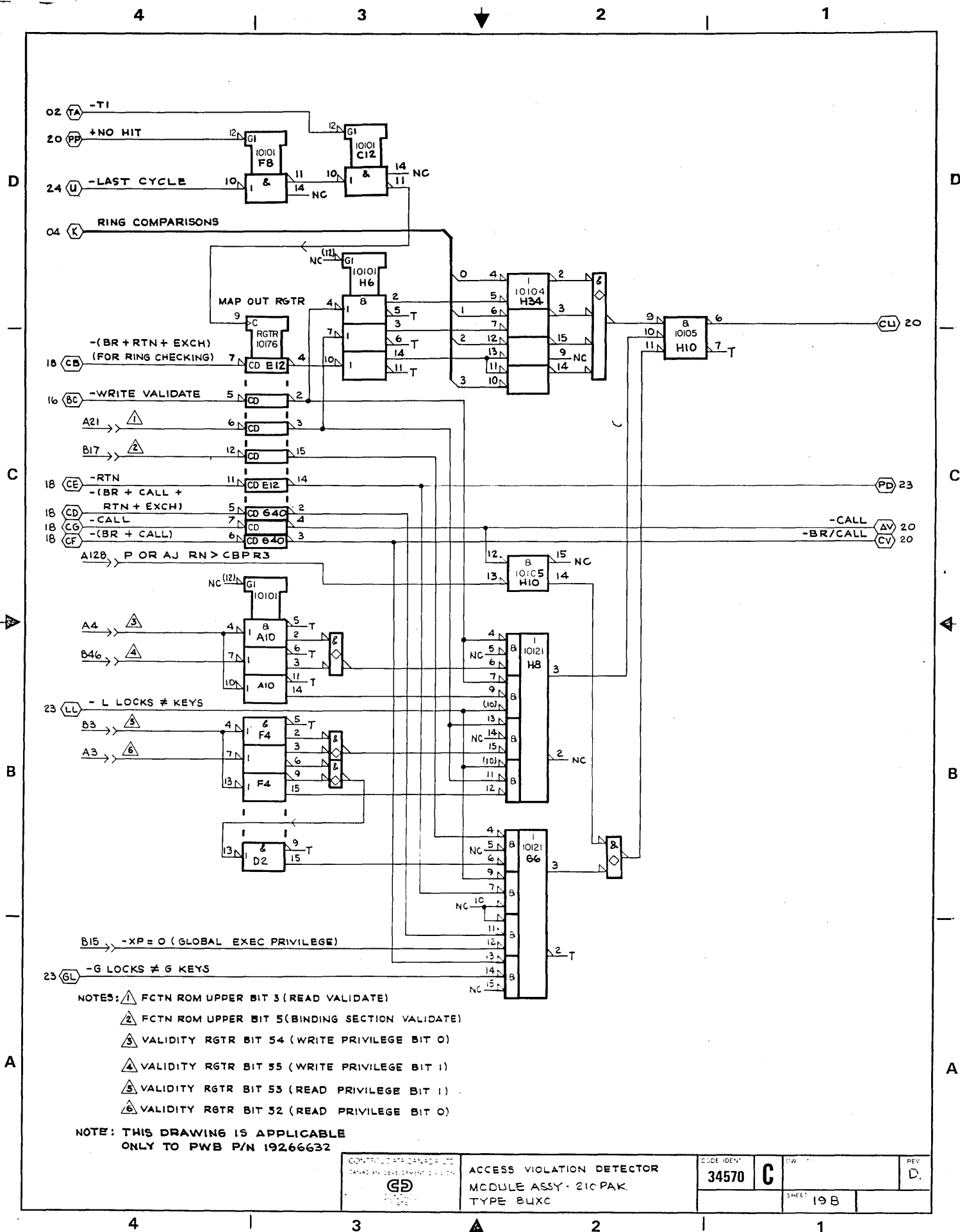
ACCESS VIOLATION DETECTOR  
MODULE ASSY - 210PAK  
TYPE 8UXO

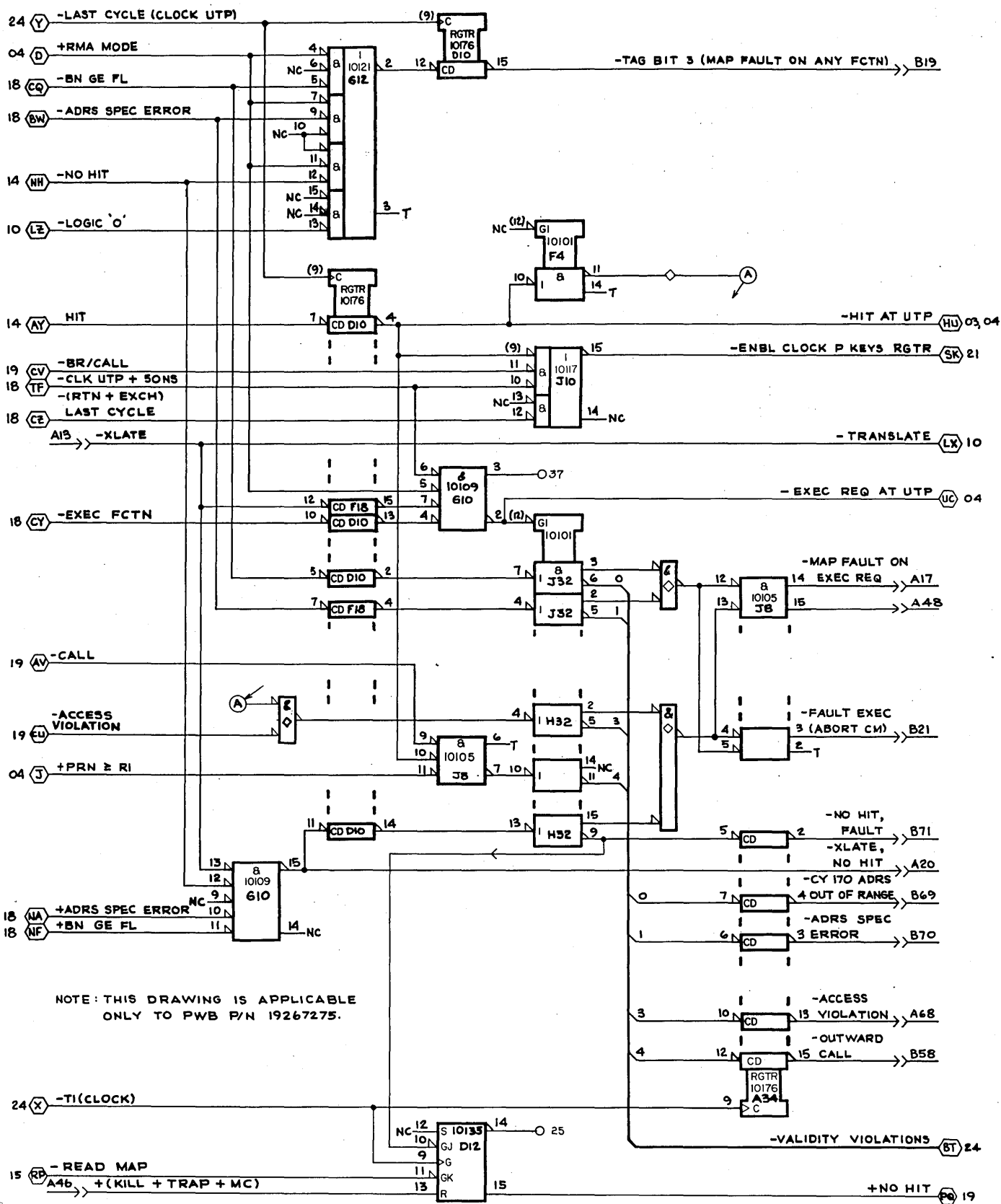
CODE IDENT.  
34570

DWG NO  
C  
SHEET 19

REV  
C



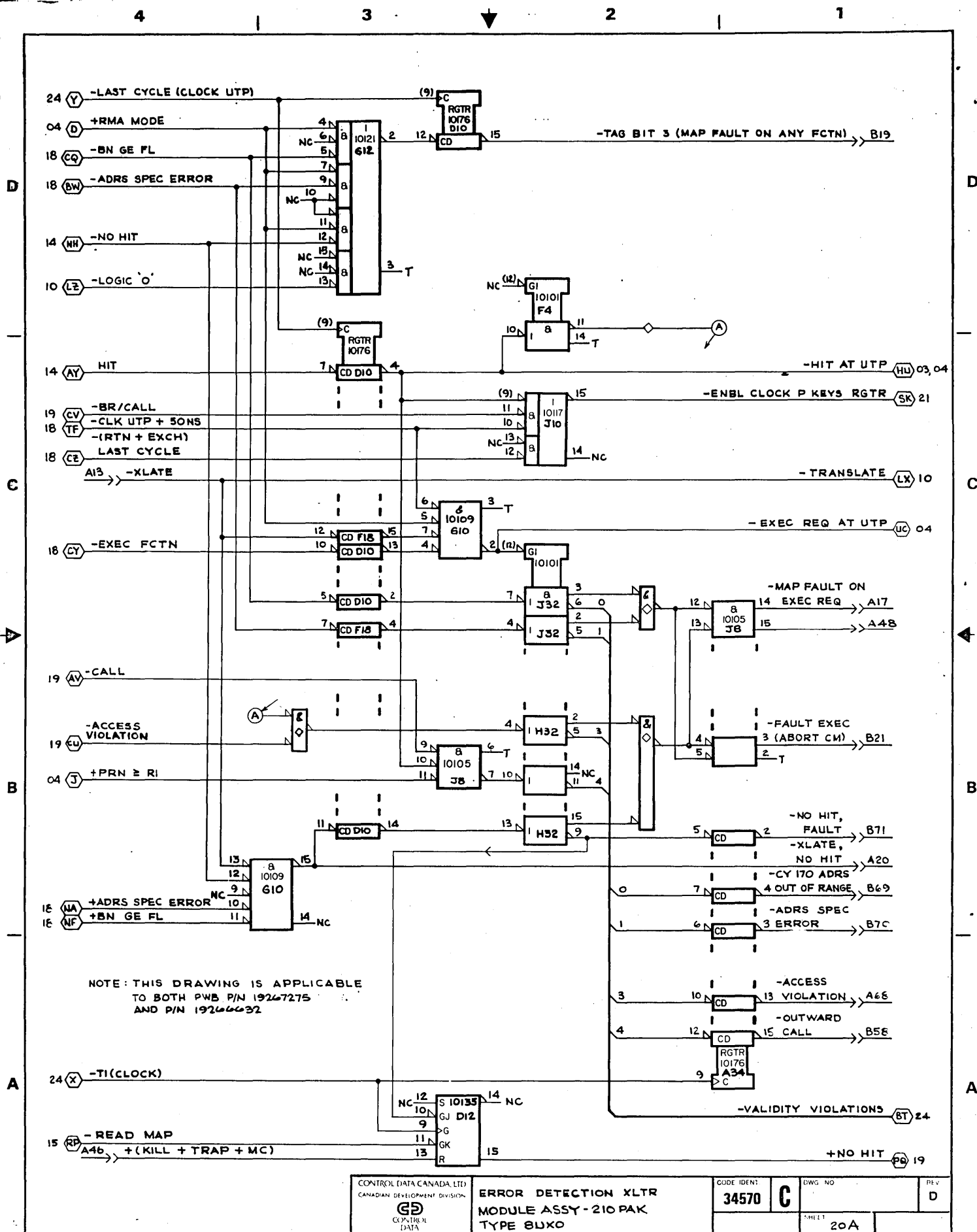




NOTE: THIS DRAWING IS APPLICABLE ONLY TO PWB P/N 19267275.

NOTE THIS DWG. IS APPLICABLE TO PWB P/N 19267945

CONTROL DATA CANADA, LTD. CANADIAN DEVELOPMENT DIVISION CONTROL DATA	<b>ERROR DETECTION XLTR</b> <b>MODULE ASSY - 210 PAK</b> <b>TYPE 8UX0</b>	CODE IDENT. <b>34570</b>	DWG. NO. <b>C</b> SHEET 20	REV <b>C</b>
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4

3

2

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D

D

C

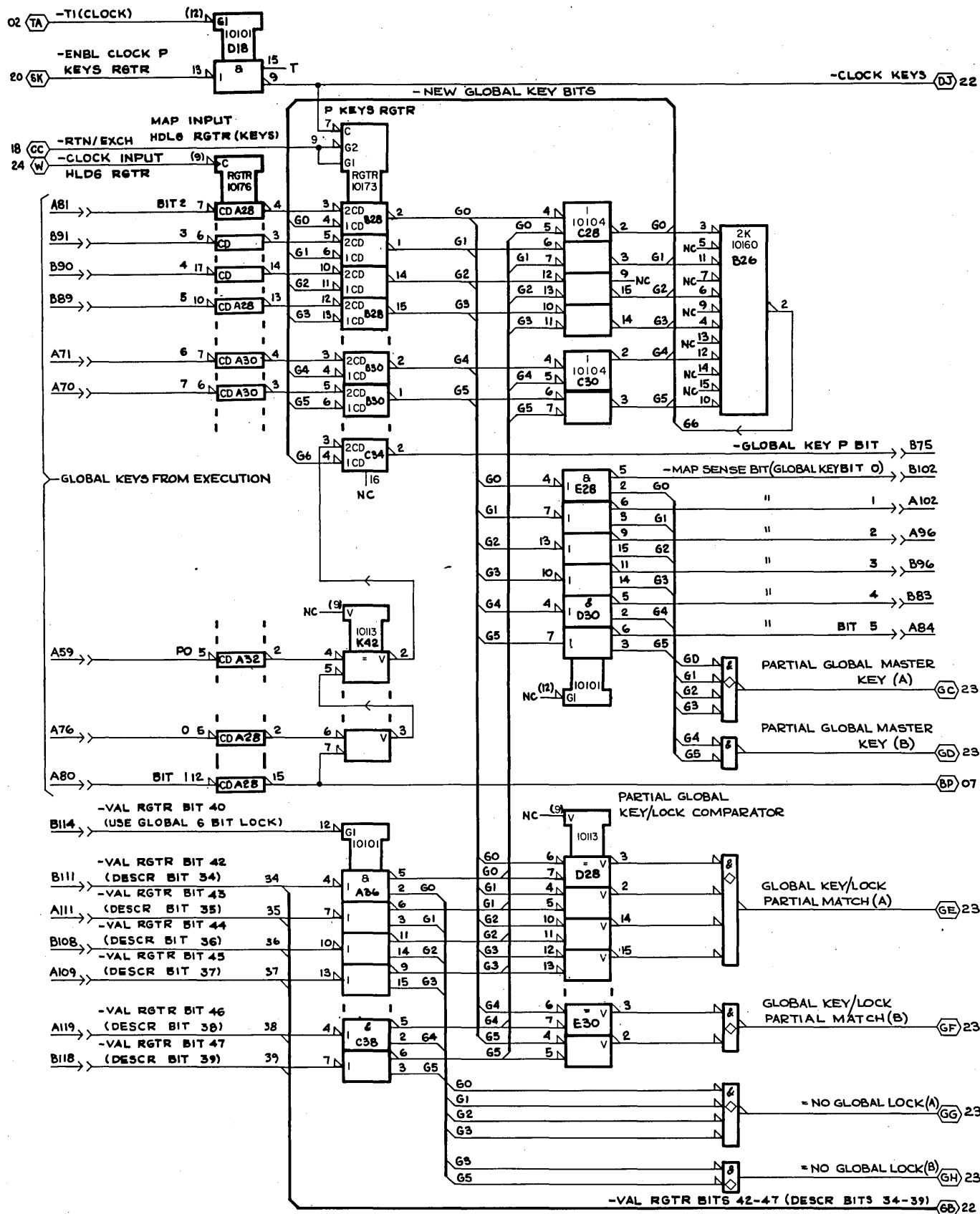
C

B

B

A

A



CONTROL DATA CANADA LTD.  
CANADIAN DEVELOPMENT DIVISION  
GD  
CONTROL  
DATA

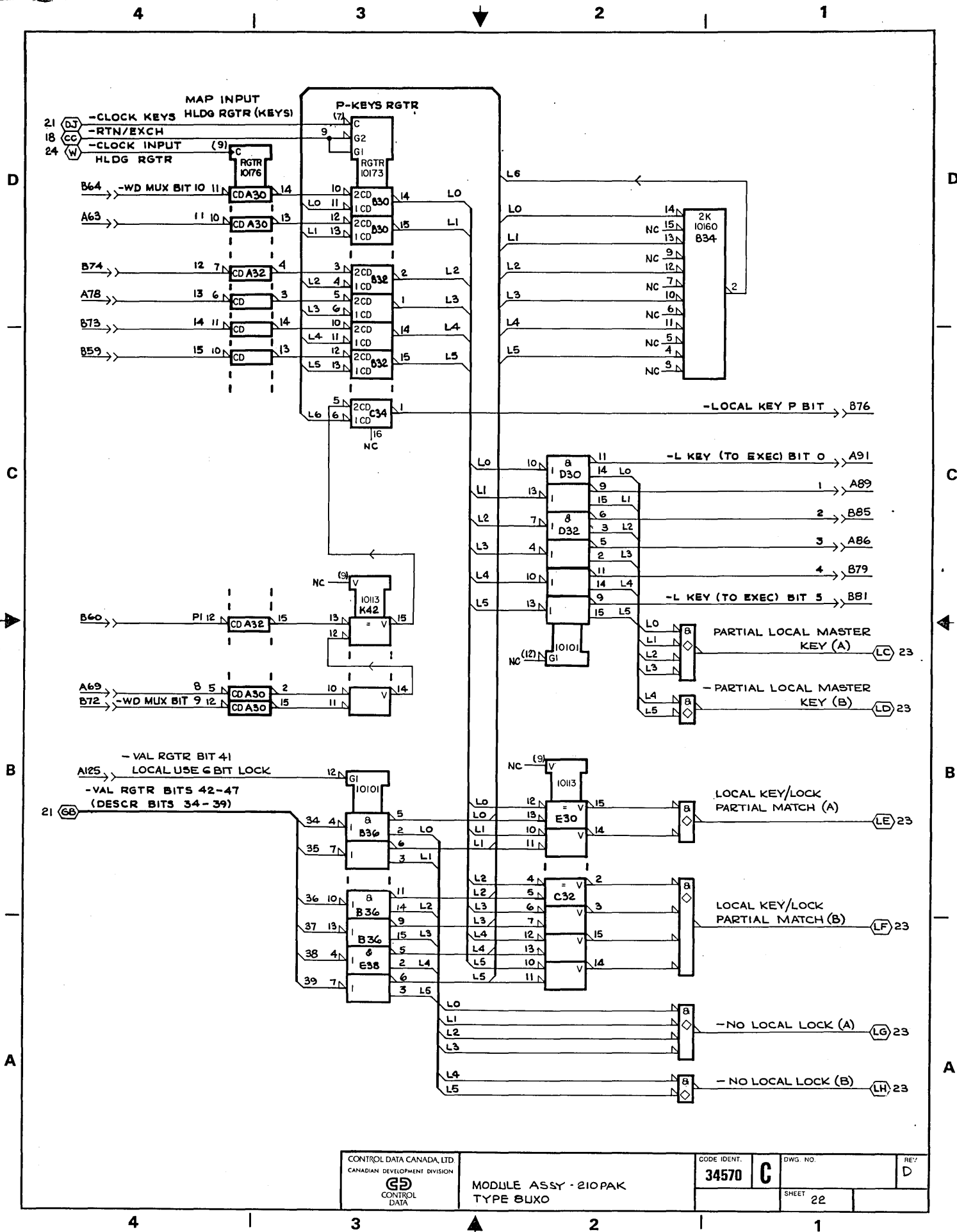
GLOBAL KEYS CKTS  
MODULE ASSY - 210 PAK  
TYPE 8LX0

CODE IDENT.  
34570

DWG. NO.  
C

REV  
D

SHEET  
21



4

3

2

1

D

D

C

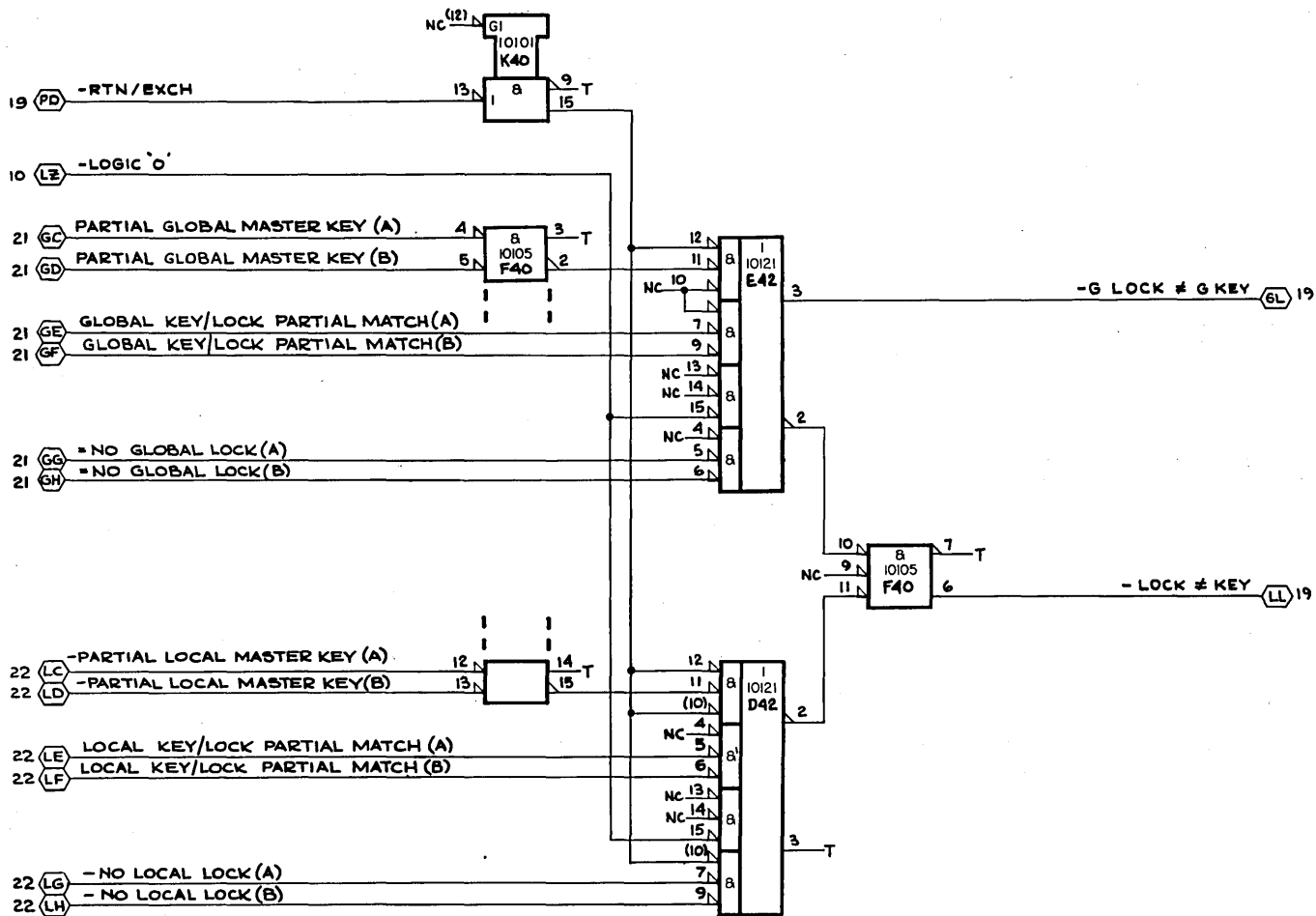
C

B

B

A

A



CONTROL DATA CANADA, LTD.  
CANADIAN DEVELOPMENT DIVISION



KEY/LOCK ACCESS XLTR

MODULE ASSY -210 PAK  
TYPE 8LXO

CODE IDENT.

34570

C

DWG. NO.

SHEET

23

REV

D



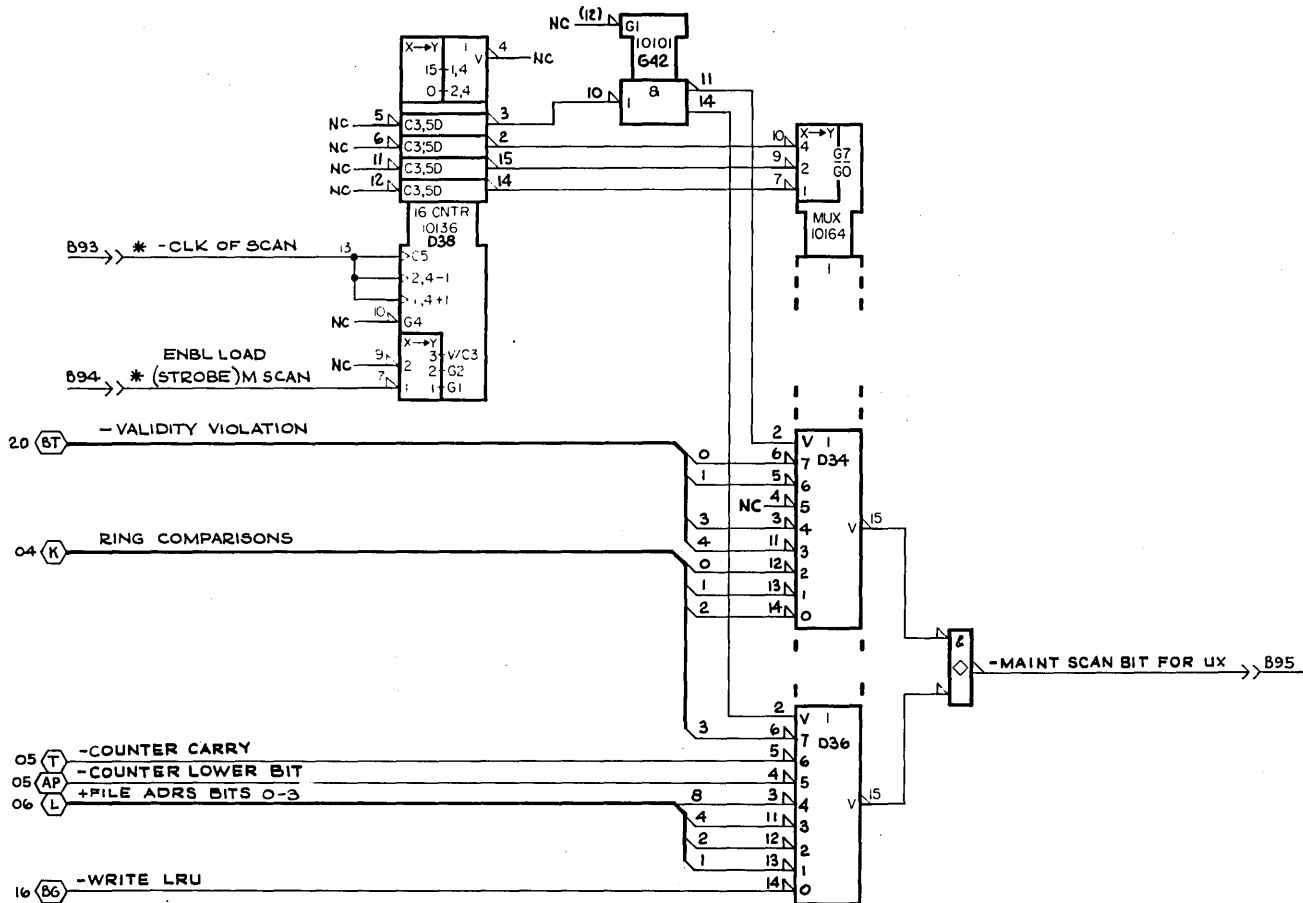
4

3

2

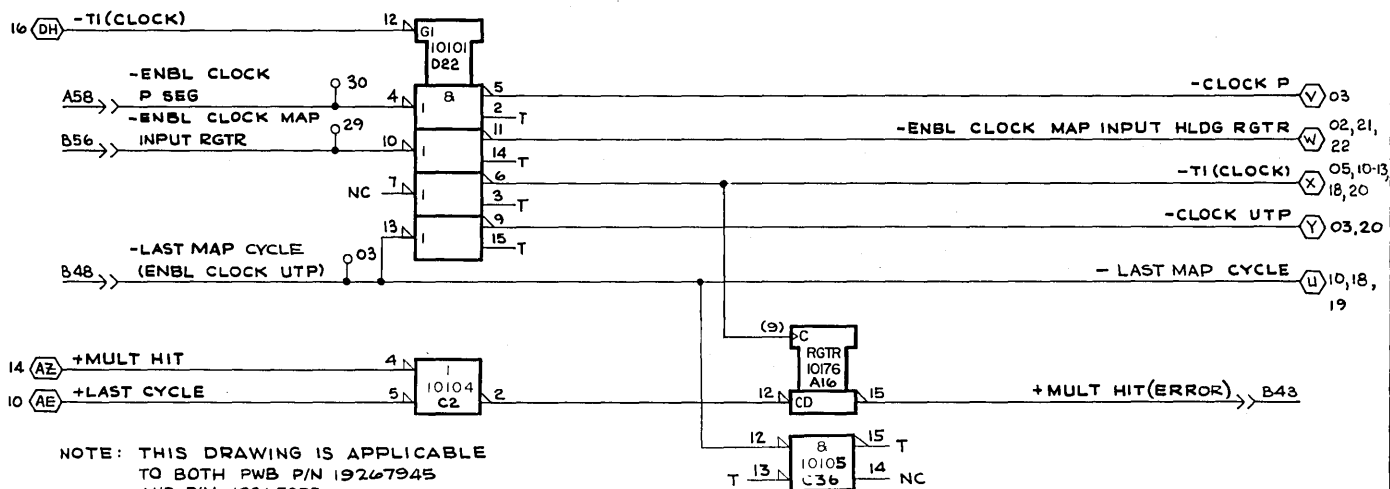
1

## MAINT SCAN



NOTE: \* DO NOT TERMINATE  
LINE LENGTH NOT CRITICAL

## MISCELLANEOUS GATES



NOTE: THIS DRAWING IS APPLICABLE  
TO BOTH PWB P/N 19267945  
AND P/N 19267275

CONTROL DATA CANADA LTD  
CANADIAN DEVELOPMENT DIVISION  
CD  
CONTROL  
DATA

MAINTENANCE SCAN & MISC GATES  
MODULE ASSY - 210 PAK  
TYPE 8UX0

CODE IDENT  
34570

C

DW: 100  
SHEET 24

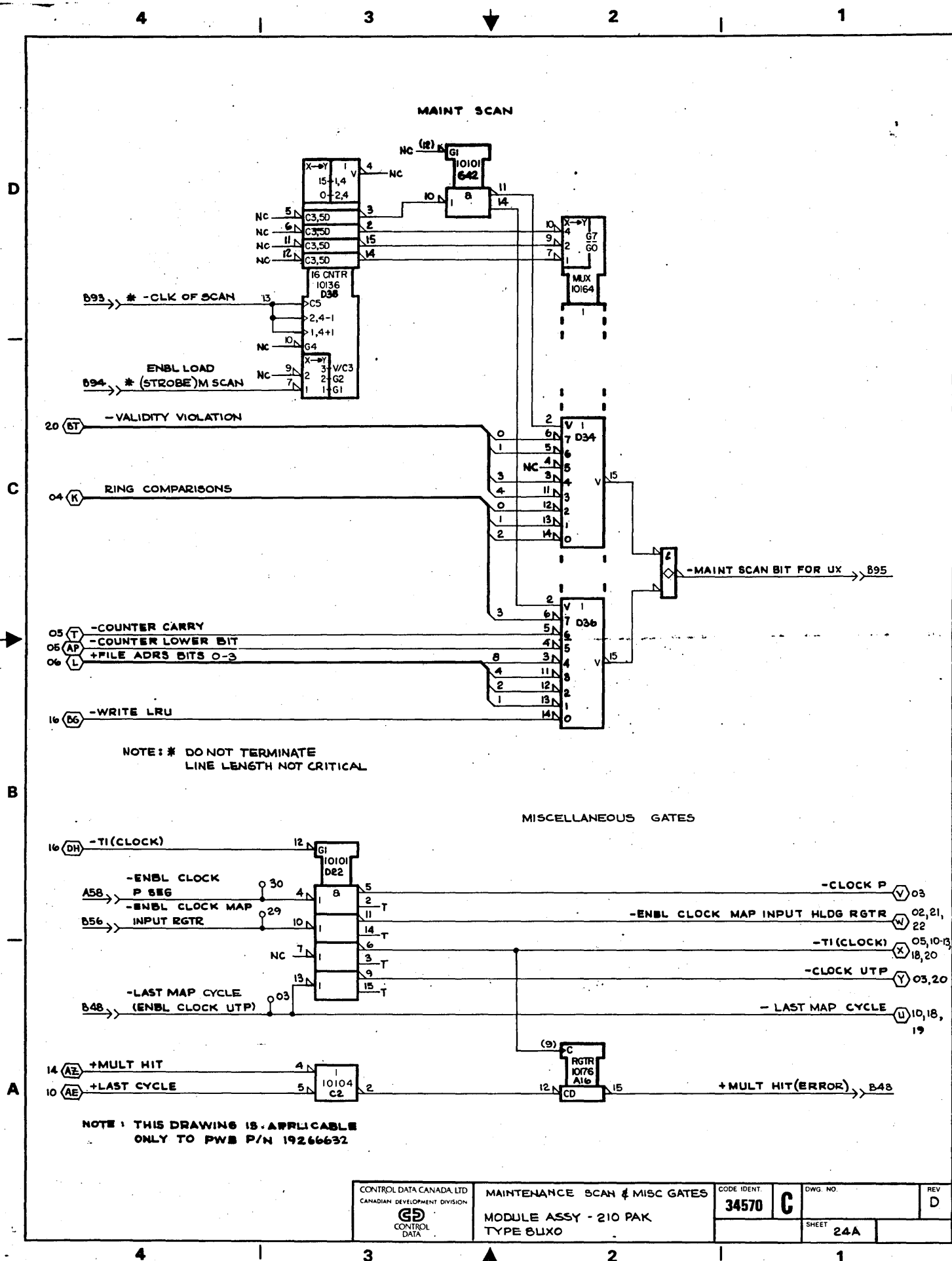
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1



# MANUAL TO EQUIPMENT LEVEL CORRELATION SHEET

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This manual reflects the equipment configuration listed below.

EXPLANATION: Locate the equipment type and series number, as shown on the equipment FCO log, in the list below. Immediately to the right of the series number is an FCO number. If that number is the latest on the equipment FCO log, then this manual accurately reflects the equipment.

EQUIPMENT TYPE	SERIES	WITH FCOs	COMMENTS
AA161-A	86	03488	Mainframe
AU127-B	40	03488	Second CPU
BS167-A	01	-----	ODPH Memory Arrays
BS228-A	01	-----	3HBH Memory Arrays



## PREFACE

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This manual contains the logic diagrams for the Control Data Models 810, 810A, 830, and 830A Computer Systems. It consists of three volumes. Volume one is CPU. Volume two is IOU and MEM. An edge connector pin reference table is in volume 3. It supplies wire connection information as well as page reference on edge connector pins in the logic diagrams of volumes 1 and 2.

This manual is intended for use by Training and Engineering Services personnel who maintain the computer systems.

Each logic diagram consists of a logic pak schematic expanded to include information that is unique to the chassis location it represents. This unique information includes:

- 1) English signal names for each edge connector pin and for each off-sheet connector.
- 2) Source/destination references for each edge connector pin.
- 3) Device names that also appear on corresponding circuit blocks in the multilevel block diagrams (MLBDs).

Logic diagrams are arranged alpha-numerically by pak type and by sheet number within chassis locations. Most chassis locations start with sheet 2 on a right-hand page. (ODPH starts with sheet 1) The table of contents is a panel map showing the pak type for each location.

Sheets with subscript A (reflecting an old PWB version) are sometimes supplied with regular sheets only to provide physical information (such as chip locations and chip pins) for the version installed in the machine. Signal names and cross references are the same as those of regular sheets.

ROM listings are located at the end of the appropriate logic diagrams.

Additional system hardware information is available in the publications listed in the system publication index on the following page.

Publication ordering information and latest revision levels are available from the Literature Distribution Services catalog, publication number 90310500.

# SYSTEM PUBLICATION INDEX

CDC@ MODELS 810/810A and 830/830A HARDWARE MANUALS	
HARDWARE MAINTENANCE MANUALS	SYSTEM MANUALS
GENERAL DESCRIPTION 60459960	CYBER 170 STATE HARDWARE REFERENCE 60469420
THEORY OF OPERATION 60469460	VIRTUAL STATE VOL. I HARDWARE REFERENCE 60469680
MULTI-LEVEL BLOCK DIAGRAMS 60469005	VIRTUAL STATE VOL. II HARDWARE REFERENCE 60458890
LOGIC DIAGRAMS 60469004	HARDWARE OPERATOR'S GUIDE 60469440
MAINTENANCE & PARTS DATA 60469500	DISPLAY STATION HARDWARE REFERENCE/CE 62952600
POWER DISTRIBUTION AND WARNING SYSTEM 60455210	COMPUTER SYSTEM CODES 60458100
INSTALLATION AND CHECKOUT 60469450	MAINTENANCE REGISTER CODES 60458110
ICI CHANNEL OPTION 60469870	ECL MICROCIRCUITS 60417700
M-G SET AND CONTROLLER (25 kVA) THEORY AND MAINTENANCE 60456520	SITE PREPARATION SECTION 1 GENERAL INFORMATION 60275100
WIRE LIST (POWER) 60461530	SITE PREPARATION SECTION 2 SYSTEM DATA 60469430
	SITE PREPARATION SECTION 3 PERIPHERAL EQUIPMENT DATA 60275300
	SITE PREPARATION SECTION 4 MONITORING AND POWER DATA 60451300

# PANEL MEM

01	DP	MASTER CLOCK (1DP0)
02		
03		
04		
05		
06	DC	MEMORY CONTROL
07		
08		
09	DD	DATA PAK 00-13,16-19,32-35,48-51
10	DD	DATA PAK 08-11,24-27,40-43,56-59
11	DD	DATA PAK 12-15,28-31,44-47,60-63
12	DA	MEMORY ADDRESS
13	HB	MEMORY (0DPH) / (3HBH) BANK 0
14	DP	MEMORY (0DPH) / (3HBH) BANK 0
15	HB	MEMORY (0DPH) / (3HBH) BANK 0
16	DP	MEMORY (0DPH) / (3HBH) BANK 0
17	HB	MEMORY (0DPH) / (3HBH) BANK 1
18	DP	MEMORY (0DPH) / (3HBH) BANK 1
19	HB	MEMORY (0DPH) / (3HBH) BANK 1
20	DP	MEMORY (0DPH) / (3HBH) BANK 1
21	HB	MEMORY (0DPH) / (3HBH) BANK 2
22	DP	MEMORY (0DPH) / (3HBH) BANK 2
23	HB	MEMORY (0DPH) / (3HBH) BANK 2
24	DP	MEMORY (0DPH) / (3HBH) BANK 2
25	HB	MEMORY (0DPH) / (3HBH) BANK 3
26	DP	MEMORY (0DPH) / (3HBH) BANK 3
27	HB	MEMORY (0DPH) / (3HBH) BANK 3
28	DP	MEMORY (0DPH) / (3HBH) BANK 3

# PANEL IOU

01	DO	MAINT ACCESS CONTROL
02		
03		
04		
05		
06	CL	CENTRAL MEMORY ADDRESS
07	CJ	MAINT RGTR
08	CH	CHANNELS 148,158,178
09	CH	CHANNELS 068-138
10	CH	CHANNELS 008-058
11	CP	PP BARREL 0
12	CR	PP BARREL 1
13	CP	PP BARREL 1
14	CH	CHANNELS 208-258
15	CH	CHANNELS 268-338
16	CH	CHANNEL 108 (OSC), CLOCK FNO
17	CH	PP MEMORY (TEN) BARREL 0
18	CH	PP MEMORY (TEN) BARREL 1
19	CM	TWO PORT MUX, DEAD START
20	CK	
21		
22		
23		
24		
25		
26		
27		
28		

# PANEL CP0

01	TH	LOWER IMMEDIATE INSTR PIPE
02	DF	UPPER IMMEDIATE INSTR PIPE
03	DF	RGTR FILE 00-15
04	DF	RGTR FILE 16-31
05	DF	RGTR FILE 32-47
06	DF	RGTR FILE 48-63
07	TS	SHIFT, L ADDER
08	TM	MAIN CONTROL
09	DE	CM RESP, TAG, DEBUG, FP EXC, AD/BD MUX SEL
10	TC	FLOATING POINT, S ADDER
11	TD	NORMALIZER, CONTROL RINGS
12	TD	CONTROLS - BDP, B ADDER, STREAMING
13	TD	BDP DATA
14	TV	PROCESS RGTR TRAPS (HARD RGTRS)
15	JL	LENGTH YKW, ARVI 1
16	DR	CONT STORE 00-07, 32-39, P MAINT RGTR
17	DR	CONT STORE 08-15, 40-47, ARVI2, P M RGTR
18	DR	CONT STORE 16-23, 48-55, ARVI2, P M RGTR
19	DR	CONT STORE 24-31, 56-63, ARVI2, P M RGTR
20	DR	CONT STORE 64-83, NEXT ADRS LOGIC
21	GA	ANI, MAP CONTROL
22	DM	MAP DATA 32-39, CLOCK FNO
23	DM	MAP DATA 40-47, CLOCK FNO
24	DM	MAP MISC VALIDITY CHECKING
25	DM	MAP DATA 48-55, CLOCK FNO
26	DM	MAP DATA 56-63, CLOCK FNO
27		
28		

# PANEL CP1

01	TH	LOWER IMMEDIATE INSTR PIPE
02	DF	UPPER IMMEDIATE INSTR PIPE
03	DF	RGTR FILE 00-15
04	DF	RGTR FILE 16-31
05	DF	RGTR FILE 32-47
06	DF	RGTR FILE 48-63
07	TS	SHIFT, L ADDER
08	TM	MAIN CONTROL
09	DE	CM RESP, TAG, DEBUG, FP EXC, AD/BD MUX SEL
10	TC	FLOATING POINT, S ADDER
11	TD	NORMALIZER, CONTROL RINGS
12	TD	CONTROLS - BDP, B ADDER, STREAMING
13	TD	BDP DATA
14	TV	PROCESS RGTR TRAPS (HARD RGTRS)
15	JL	LENGTH YKW, ARVI 1
16	DR	CONT STORE 00-07, 32-39, P MAINT RGTR
17	DR	CONT STORE 08-15, 40-47, ARVI2, P M RGTR
18	DR	CONT STORE 16-23, 48-55, ARVI2, P M RGTR
19	DR	CONT STORE 24-31, 56-63, ARVI2, P M RGTR
20	DR	CONT STORE 64-83, NEXT ADRS LOGIC
21	GA	ANI, MAP CONTROL
22	DM	MAP DATA 32-39, CLOCK FNO
23	DM	MAP DATA 40-47, CLOCK FNO
24	DM	MAP MISC VALIDITY CHECKING
25	DM	MAP DATA 48-55, CLOCK FNO
26	DM	MAP DATA 56-63, CLOCK FNO
27		
28		

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# MODELS 810/830 PAK MODULE PART NUMBERS

PAK TYPE	PANEL	PWA PART NUMBER	ECO LEVEL	MANUAL REV LEVEL
ODPH	MEM	52803060	44735	A
1CHO	IOU	19269031	03485	A
1CJO	IOU	19268484	03485	A
1CKO	IOU	19269158	03253	A
1CLO	IOU	19269335	03396	A
1CMO	IOU	19267028	03393	A
1CNO	IOU	19269002	03485	A
1CPO	IOU	19269334	03364	A
1CQO	IOU	19269132	03504	A
1CRO	IOU	19269130	03333	A
1DAO	MEM	19269309	03375	A
1DCO	MEM	19269310	03485	A
1DDO	MEM	19269223	03350	A
1DEO	CPU	19269378	03485	A
1DFO	CPU	19268827	03351	A
1DPO	MEM	19269270	03504	A
1DQO	IOU	19269193	03350	A
1DRO	CPU	19269224	03502	A
1DSO	CPU	19269342	03386	A
1DWO	CPU	19265888	03504	A
1GLO	CPU	19269305	03485	A
2GAO	CPU	19269143	03411	A
3HBH	MEM	24670814	-----	A
8TCO	CPU	19267245	03025	A
8TDO	CPU	19269308	03359	A
8TGO	CPU	19269302	03381	A
8THO	CPU	19269303	03359	A
8TJO	CPU	19269245	03338	A
8TMO	CPU	19269350	03504	A
8TRO	CPU	19267819	03343	A
8TSO	CPU	19267359	03343	A
8TVO	CPU	19267402	03381	A
8UXO	CPU	19267821	03365	A



COMMENT SHEET

MANUAL TITLE: Control Data 810/810A/830/830A Computer Systems  
Logic Diagrams Hardware Maintenance Manual

PUBLICATION NO.: 60469004

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